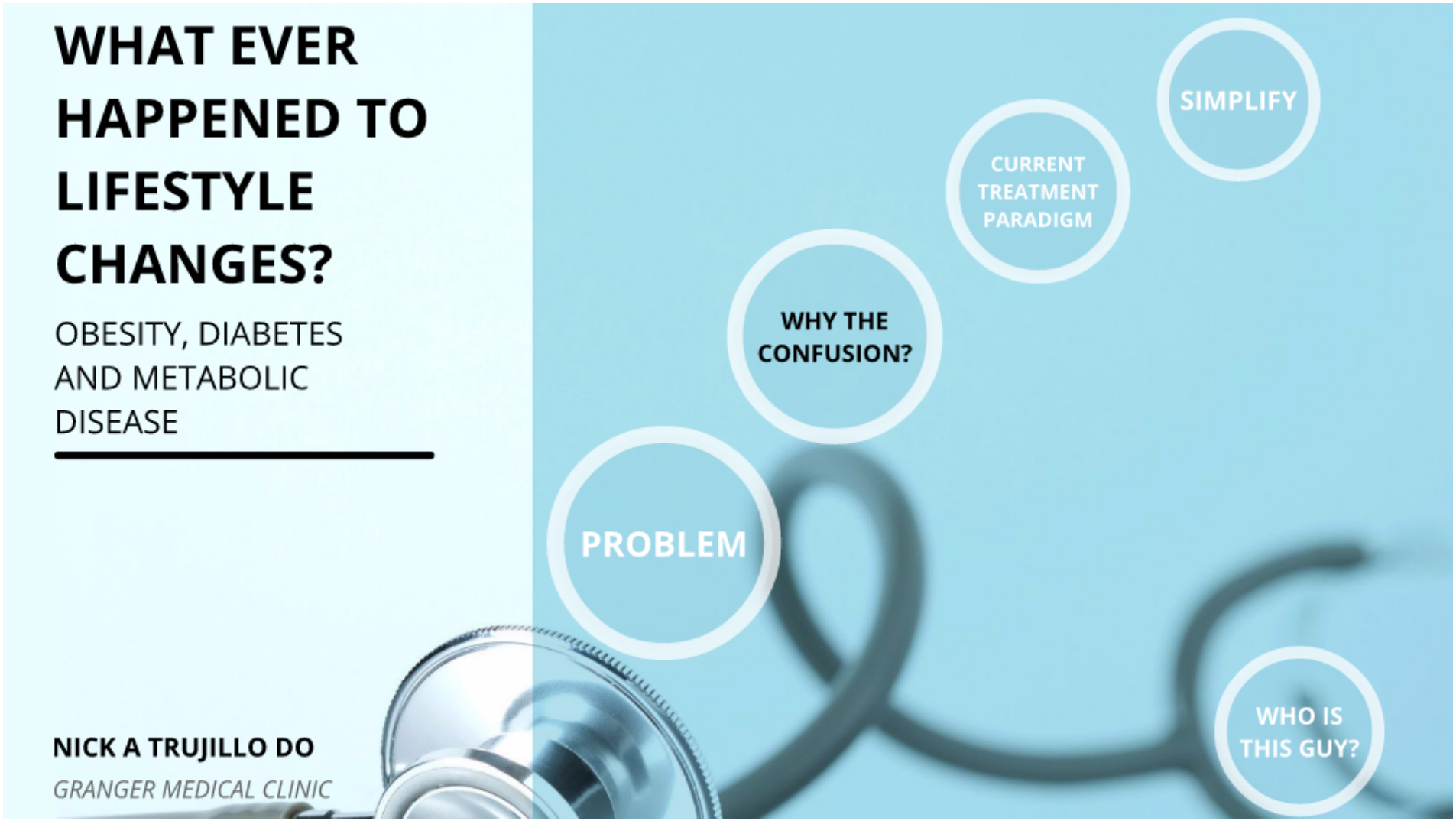
WHAT EVER HAPPENED TO LIFESTYLE CHANGES?

OBESITY, DIABETES AND METABOLIC DISEASE

NICK A TRUJILLO DO

GRANGER MEDICAL CLINIC




WHO IS THIS GUY?


GRANGER
MEDICAL CLINIC
Exceptional Care. One Patient at a Time.
Nick A Trujillo DO
DOCTOR


STATE


Emma Eccles Jones
COLLEGE of EDUCATION
and HUMAN SERVICES
UtahStateUniversity
Psychology


Touro
University
Nevada


NATIONAL BOARD OF OSTEOPATHIC MEDICAL EXAMINERS
D O
SINCE 1934


SCOTTSDALE
HEALTHCARE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AMERICAN BOARD OF FAMILY MEDICINE
MCMLXIX
American Board
of Family Medicine


?
PASSION
MONEY

AMERICAN BOARD of OBESITY MEDICINE

CERTIFIED DIPLOMATE

GRANGER MEDICAL CLINIC

Exceptional Care. One Patient at a Time.


OBJECTIVES

OBJECTIVES

- Understand the severity of the obesity, diabetes and metabolic syndrome "epidemic"
- Discuss barriers and confusion facing patients interested in lifestyle changes
- Briefly review current treatment approaches
- Discuss the effectiveness of a multifaceted approach to lifestyle intervention

PRE-QUESTIONS

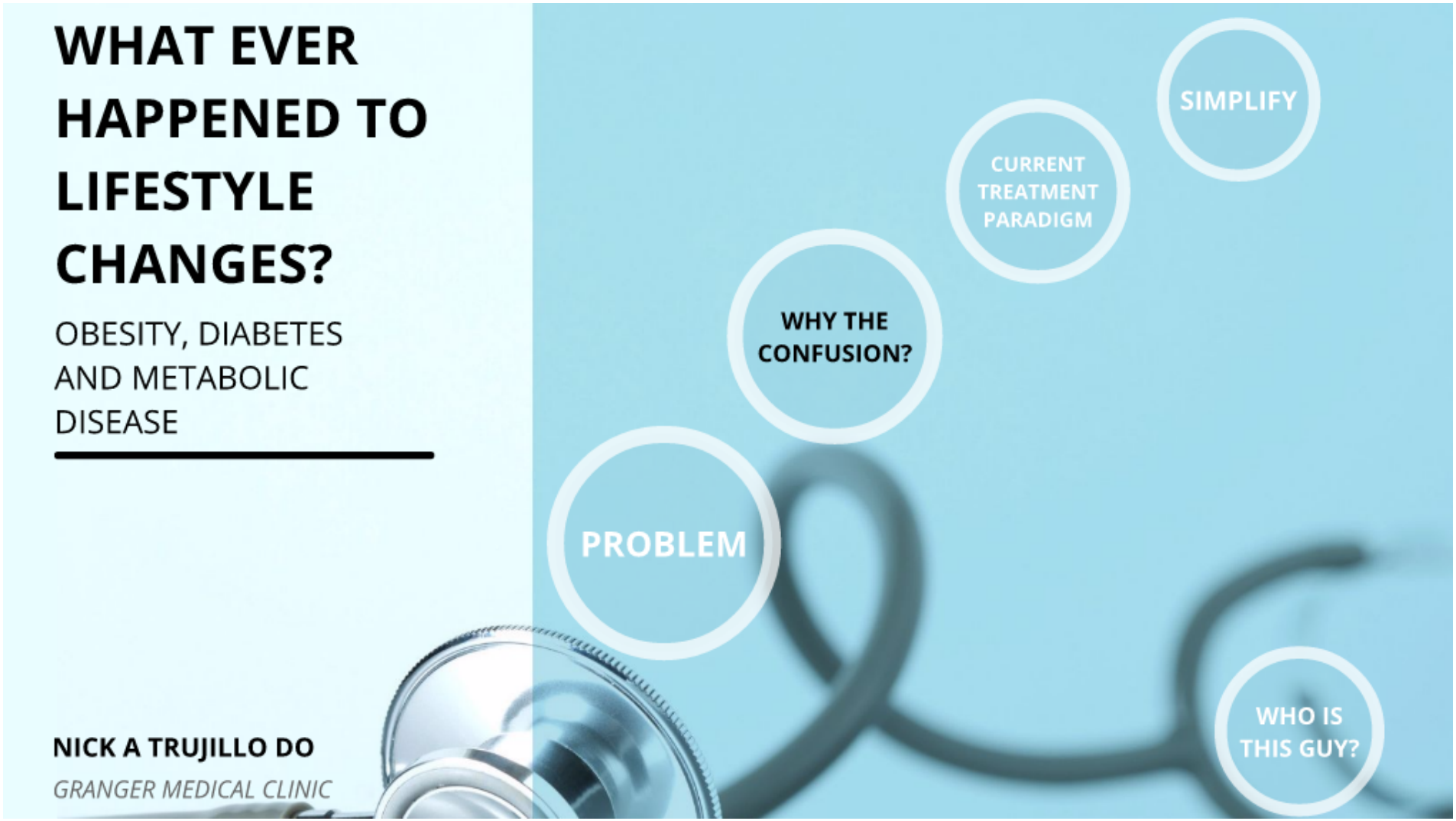
1. What are the NCEP diagnostic criteria for metabolic syndrome?

2. How many hours of nutrition education does the average medical student receive in 4 years of medical school?

3. What common diabetes medications cause weight gain?

4. Is type 2 diabetes a progressive chronic illness or is it completely reversible?

5. What is the groundbreaking therapy on the market that can reverse chronic disease, cure obesity and significantly decrease your risk for CVD?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SIMPLIFY
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WHY THE CONFUSION?
PROBLEM
WHO IS THIS GUY?

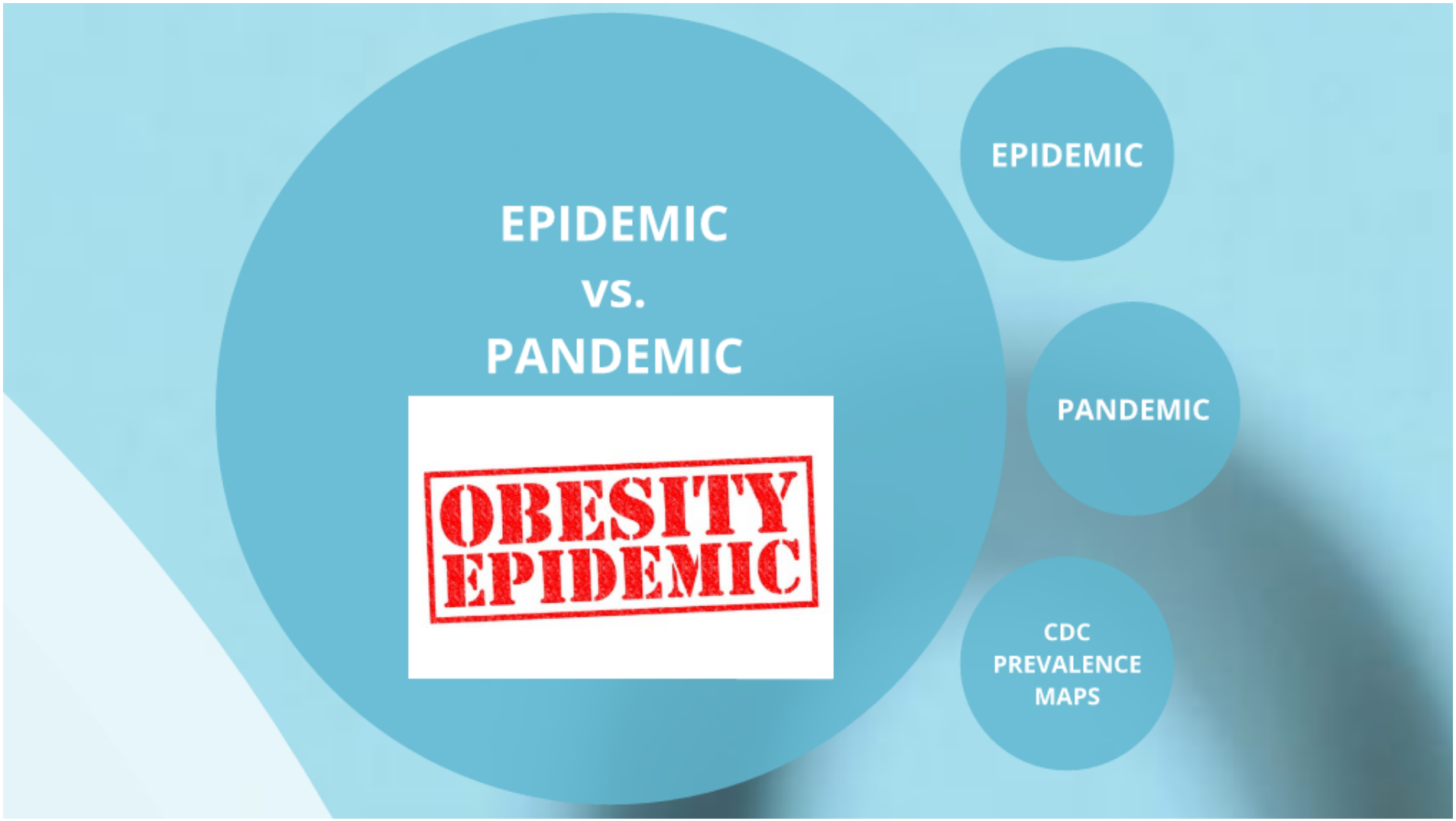
PROBLEM

EPIDEMIC VS. PANDEMIC

OBESITY

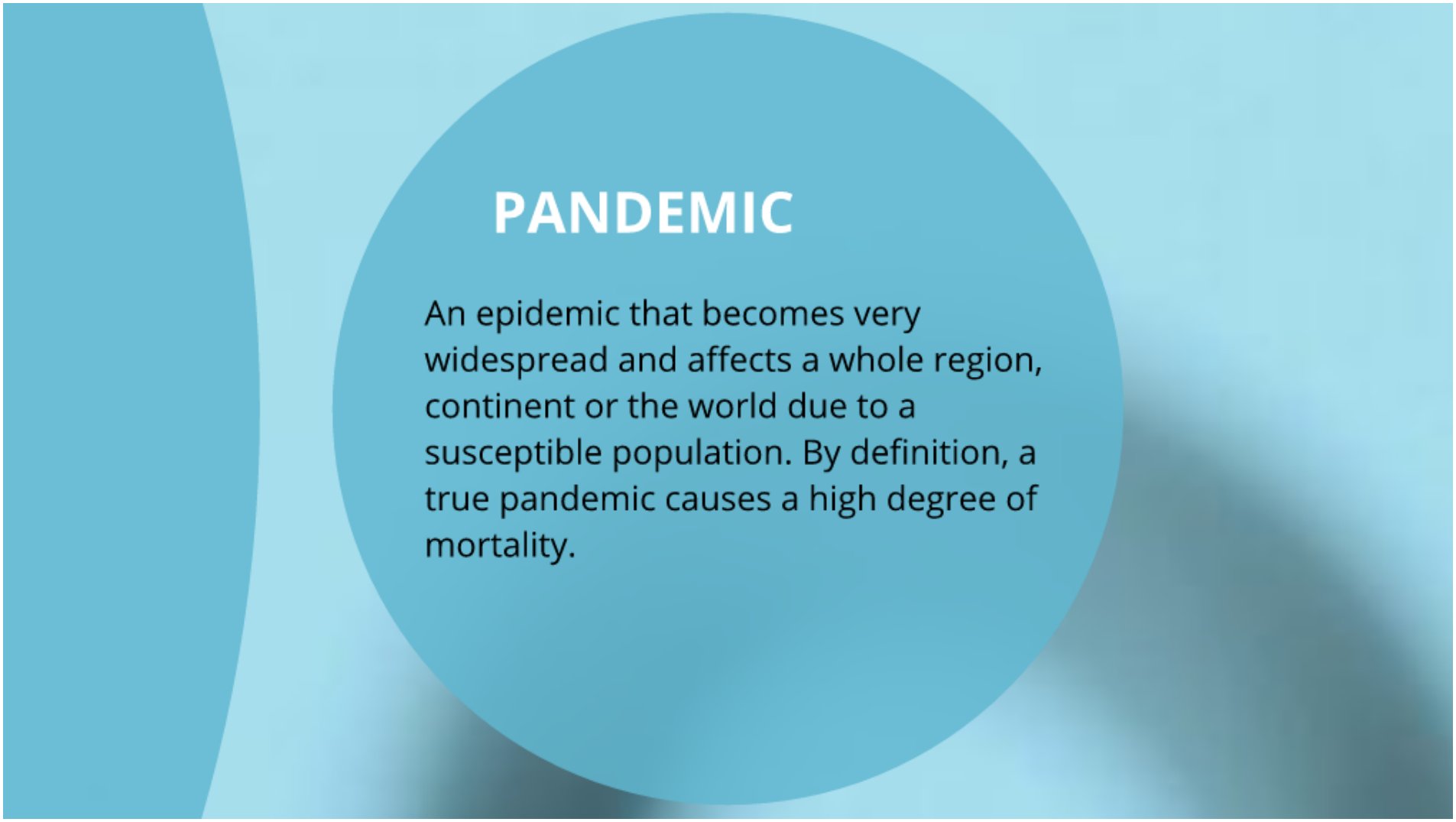
TYPE 2 DIABETES

METABOLIC SYNDROME

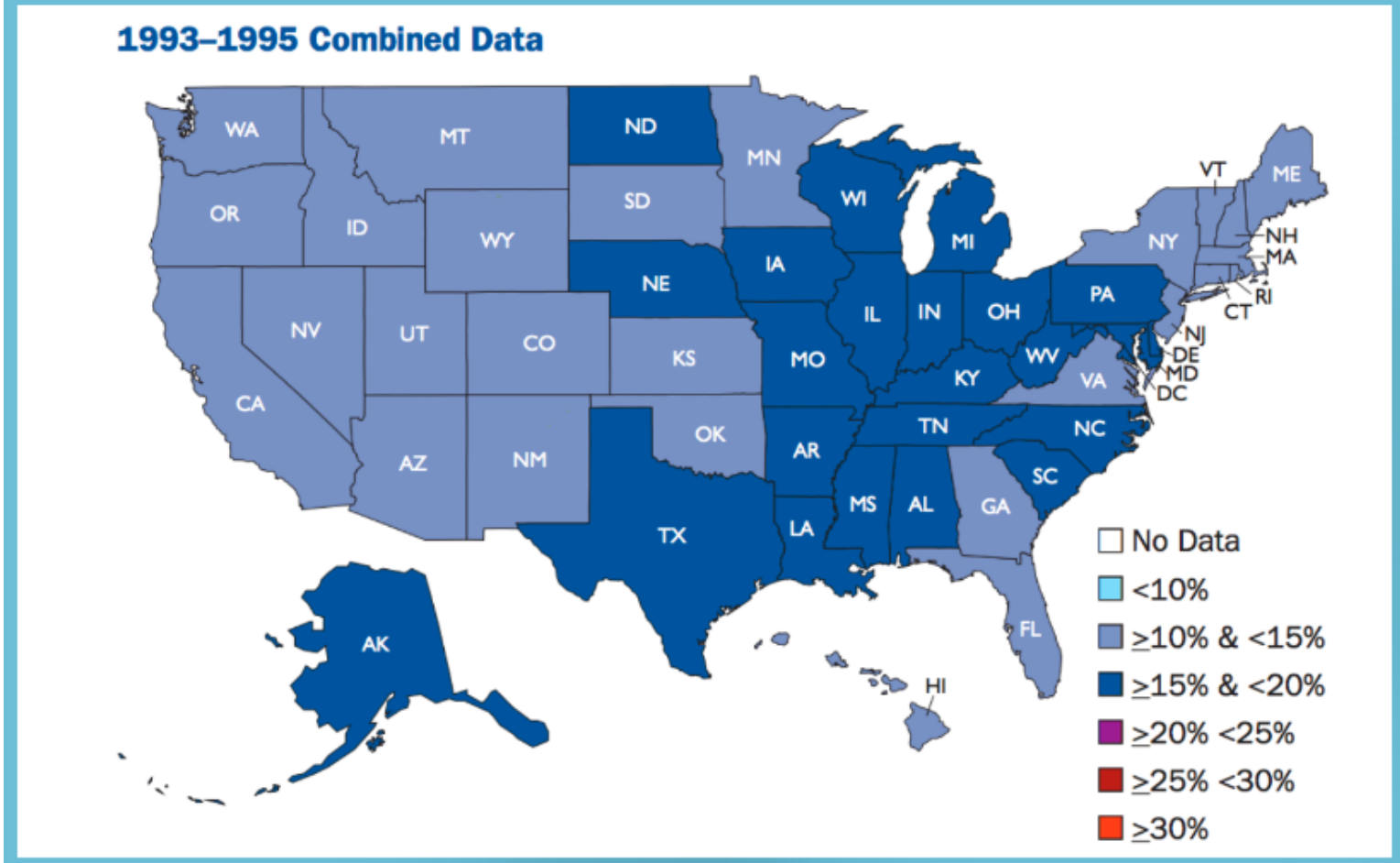

EPIDEMIC
vs.
PANDEMIC
OBESITY EPIDEMIC
EPIDEMIC
PANDEMIC
CDC PREVALENCE MAPS

EPIDEMIC
VS.
PANDEMIC


EPIDEMIC
Affecting a disproportionately large number of individuals within a population, community, or region at the same time; excessively prevelant

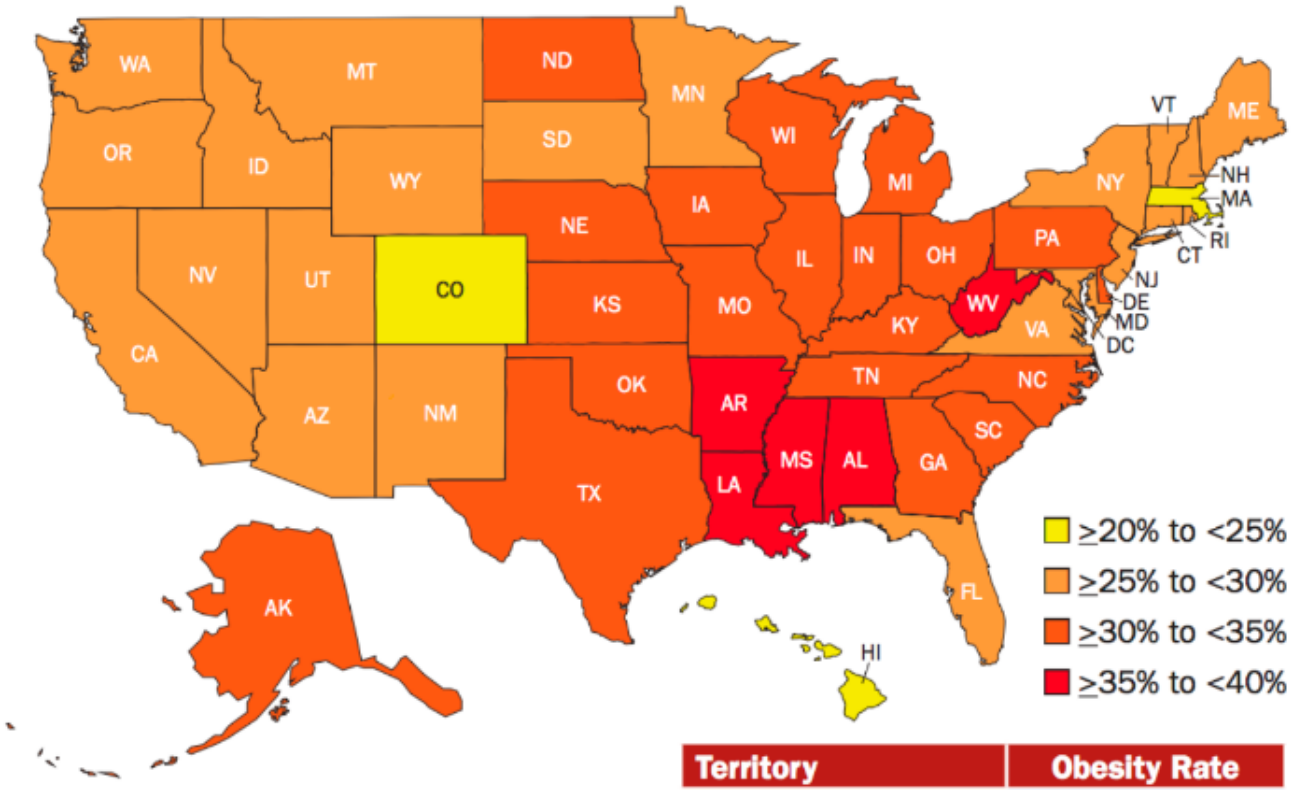

PANDEMIC
An epidemic that becomes very widespread and affects a whole region, continent or the world due to a susceptible population. By definition, a true pandemic causes a high degree of mortality.

CDC PREVALENCE MAPS



CDC PREVALENCE MAPS

2016 Adult Obesity Rates



Territory	Obesity Rate
Guam	28.3
Puerto Rico	30.7

Source: CDC, BRFSS

WORLDWIDE


GLOBAL THREAT
WAITING AREA
OBESITY
BIRD FLU
GLOBAL WARMING
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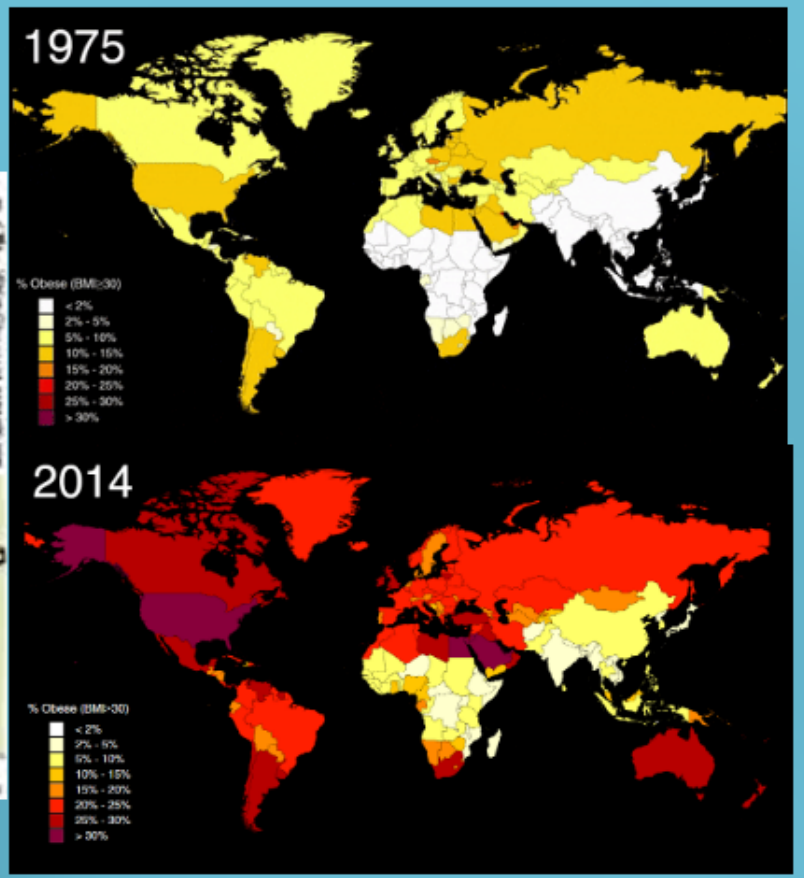
1975
% Obese (BMI≥30)
< 2%
2% - 5%
5% - 10%
10% - 15%
15% - 20%
20% - 25%
25% - 30%
> 30%
2014
% Obese (BMI≥30)
< 2%
2% - 5%
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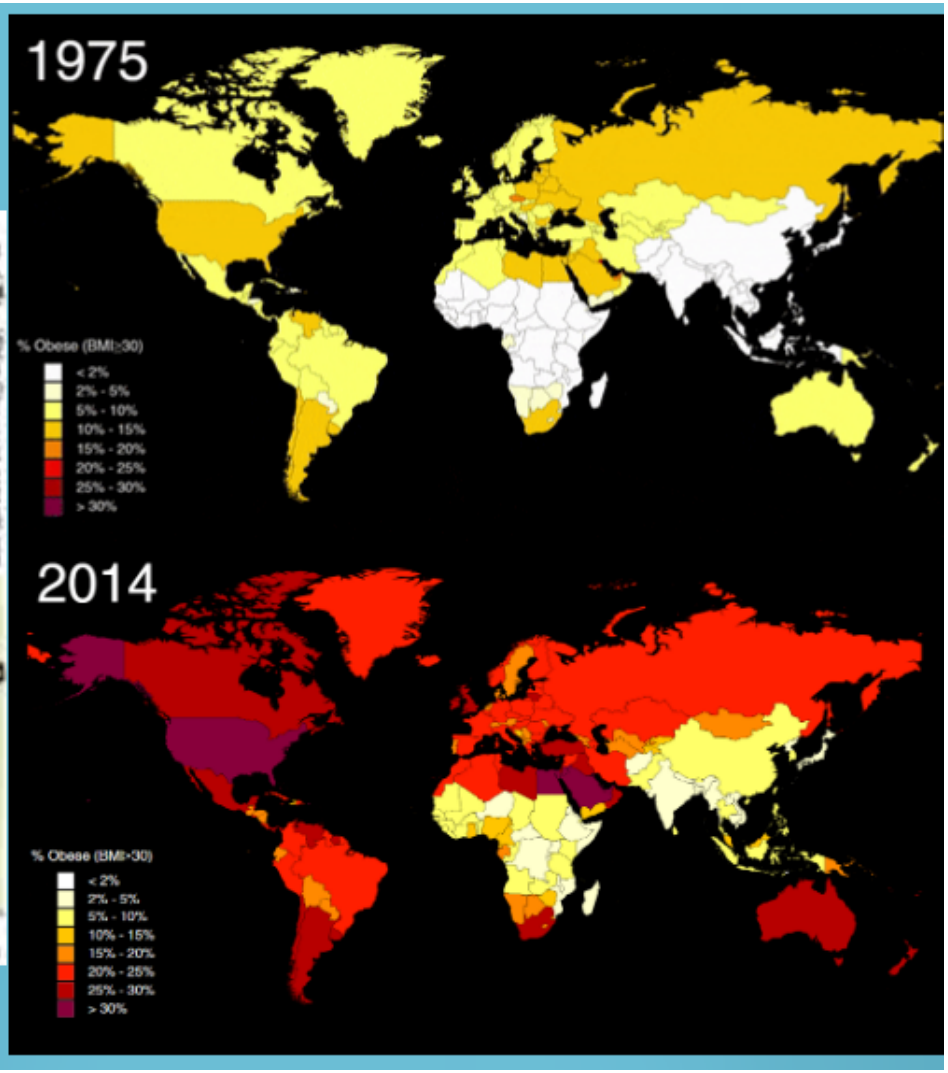
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OBESITY

- Nationally , nearly 38% of adults are obese (NHANES)
- More than 70% are overweight or obese
- Nearly 8% of adults are extremely obese (BMI >40)
- Obesity rates have doubled among adults and more than tripled among children since the 1980's (NHANES)
- Obesity crisis costs our nation more than $150 billion in healthcare costs annually, and billions of dollars more in lost productivity
- Obesity increases the risk of developing hypertension, heart disease, T2DM, stroke, liver disease, kidney disease, Alzheimers dementia, gallbladder disease, mental health issues and many types of cancer. *
- Each year, obesity is associated with more than 100,000 premature deaths. **

** NHLBI Obesity Education Initiative Expert Panel on the Identification, Evaluation, and Treatment of Obesity in Adults (US). Clinical guidelines on the identification, evaluation, and treatment of overweight and obesity in adults: the evidence report. https://www. ncbi.nlm.nih.gov/books/NBK1994/. Published 1998. Accessed July 18, 2017.*

*** Flegal KM, Graubard BI, Williamson DF, et al. Excess deaths associated with underweight, overweight, and obesity. JAMA. 2005;293(15):1861-7.*


UTAH
• 2016 Obesity rate: 25.4% (rank 46/51), increased from 17.3% in 2000
•

TYPE 2 DIABETES

National Diabetes Statistics report, 2017

- 30.3 million people have diabetes (9.4% of US population)*
  - Diagnosed: 23.1 million
  - Undiagnosed: 7.2 million; 23.8% of people with diabetes are undiagnosed
- Estimated 33.9% of US adults (84 million) had prediabetes in 2015
  - Nearly half (48.3%) of adults age >65 had prediabetes
- Among adults with prediabetes, 11.6% reported being told by their health professional that they had this condition
- 7.2% of Utah adults have T2DM (2016 state of obesity)

**estimated percentages derived from NHANES, NHIS, NDW, BRFSS, USDSS, and US resident population estimates*

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Chronic progressive disease or completely reversible?

METABOLIC SYNDROME

aka insulin resistance syndrome

NCEP ATP III criteria: Any 3 of the following 5 criteria

1. **Increased waist circumference**: >40 in (male), >35 in (female)
2. **Hyperglycemia**: Fasting glucose > or = 100
3. **Hypertriglyceridemia**: > or = 150
4. **Low HDL**: <40 (male), <50 (female)
5. **Hypertension**: >130 systolic or >85 diastolic

More than 1/3 of US adults meet these criteria (2012)

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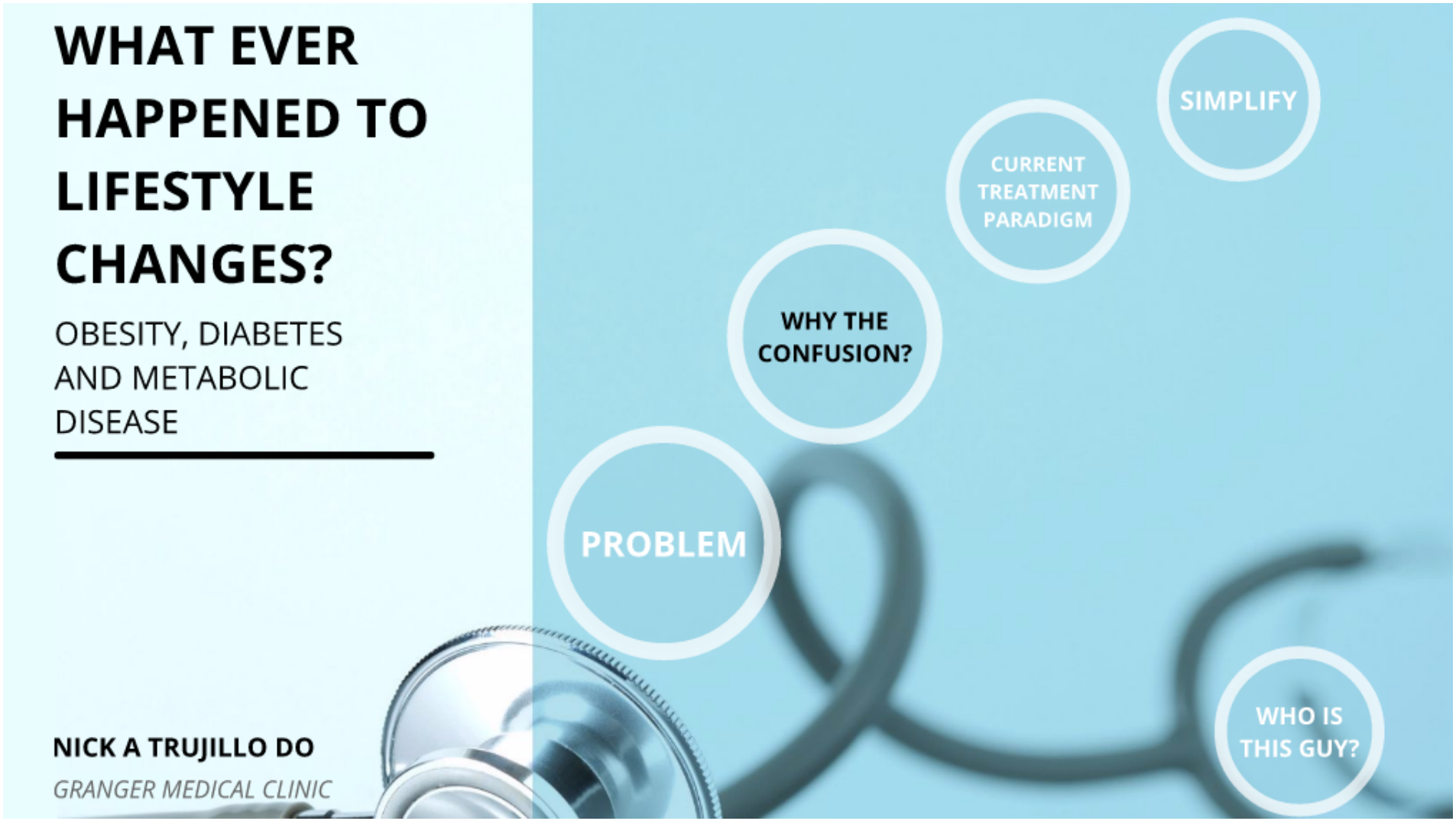
According to the NIH it is predicted that metabolic syndrome may overtake smoking as the leading risk factor for heart disease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WHY THE CONFUSION?
GUIDELINES +
ASK YOUR DOCTOR

2015-2020 USDA DIETARY GUIDELINES

INFLUENCES

PROGRAMS GALORE

Exercise mandatory?

GUIDELINES +

OTHER EXTERNAL INFLUENCES

1992

2005


Food Guide Pyramid
A Guide to Daily Food Choices
Fats, Oils, & Sweets
USE SPARINGLY
KEY
Fat (naturally occurring and added)
Sugars (added)
These symbols show fats, oils, and added sugars in foods.
Milk, Yogurt, & Cheese Group
2-3 SERVINGS
Meat, Poultry, Fish, Dry Beans, Eggs, & Nuts Group
2-3 SERVINGS
Vegetable Group
3-5 SERVINGS
Fruit Group
2-4 SERVINGS
Bread, Cereal, Rice, & Pasta Group
6-11 SERVINGS

1992


MyPyramid
STEPS TO A HEALTHIER YOU
MyPyramid.gov
GRAINS
VEGETABLES
FRUITS
MILK
MEAT & BEANS

2005

2015-2020 USDA DIETARY GUIDELINES

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2015-2020 USDA DIETARY GUIDELINES

1. A lifetime of healthy eating helps to prevent chronic diseases like obesity, heart disease, high blood pressure, and Type 2 diabetes.
2. Healthy eating is one of the most powerful tools we have to reduce the onset of disease. The Dietary Guidelines recommendations can help you make informed choices about eating for you and your family.
3. The path to improving health through nutrition is to follow a healthy eating pattern that's right for you. Eating patterns are the combination of foods and drinks you eat over time. A healthy eating pattern is adaptable to a person's taste preferences, traditions, culture and budget.
4. A healthy eating pattern includes:
   - A variety of vegetables: dark green, red and orange, legumes (beans and peas), starchy and other vegetables
   - Fruits, especially whole fruit
   - Grains, at least half of which are whole grain
   - Fat-free or low-fat dairy, including milk, yogurt, cheese, and/or fortified soy beverages
   - A variety of protein foods, including seafood, lean meats and poultry, eggs, legumes (beans and peas), soy products, and nuts and seeds
   - Oils, including those from plants: canola, corn, olive, peanut, safflower, soybean, and sunflower. Oils also are naturally present in nuts, seeds, seafood, olives, and avocados.
5. Healthy eating patterns limit added sugars. Less than 10% of your daily calories should come from added sugars. ChooseMyPlate.gov provides more information about added sugars, which are sugars and syrups that are added to foods or beverages when they are processed or prepared. This does not include naturally occurring sugars such as those consumed as part of milk and fruits.

MyPlate is a reminder to find your healthy eating style and build it throughout your lifetime. Everything you eat and drink matters. The right mix can help you be healthier now and in the future. This means:

- Focus on variety, amount, and nutrition.
- Choose foods and beverages with less saturated fat, sodium, and added sugars.
- Start with small changes to build healthier eating styles.
- Support healthy eating for everyone.

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8. Most Americans can benefit from making small shifts in their daily eating habits to improve their health over the long run. Small shifts in food choices—over the course of a week, a day, or even a meal—can make a difference in working toward a healthy eating pattern that works for you.
9. Remember physical activity! Regular physical activity is one of the most important things individuals can do to improve their health. According to the Department of Health and Human Services' Physical Activity Guidelines for Americans, adults need at least 150 minutes of moderate-intensity physical activity each week and should perform muscle-strengthening exercises on two or more days each week. Children ages 6 to 17 years need at least 60 minutes of physical activity per day, including aerobic, muscle-strengthening, and bone-strengthening activities.
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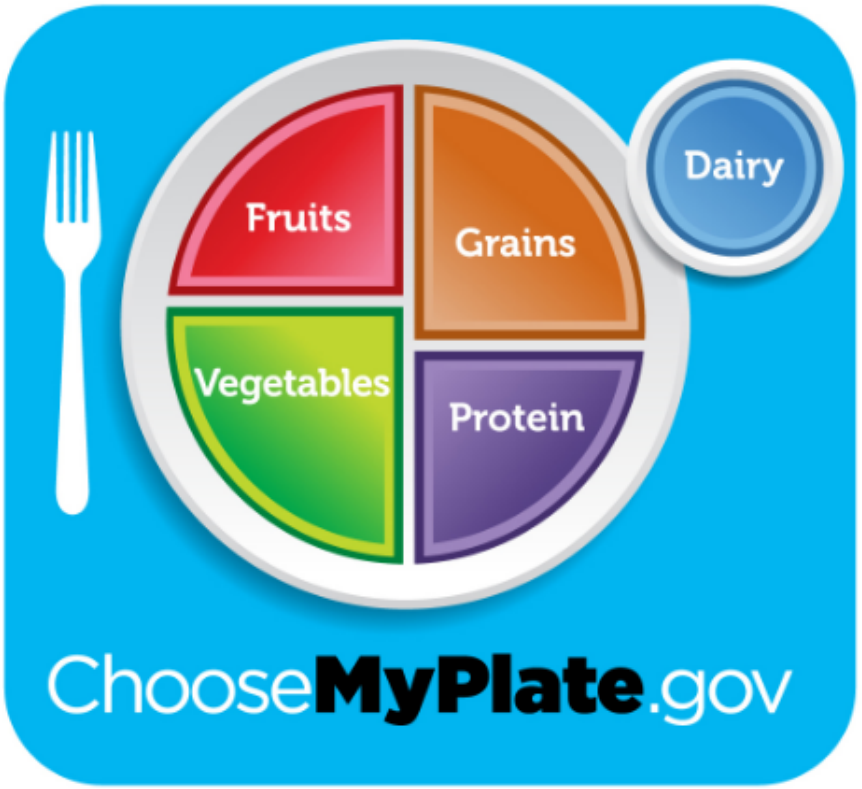

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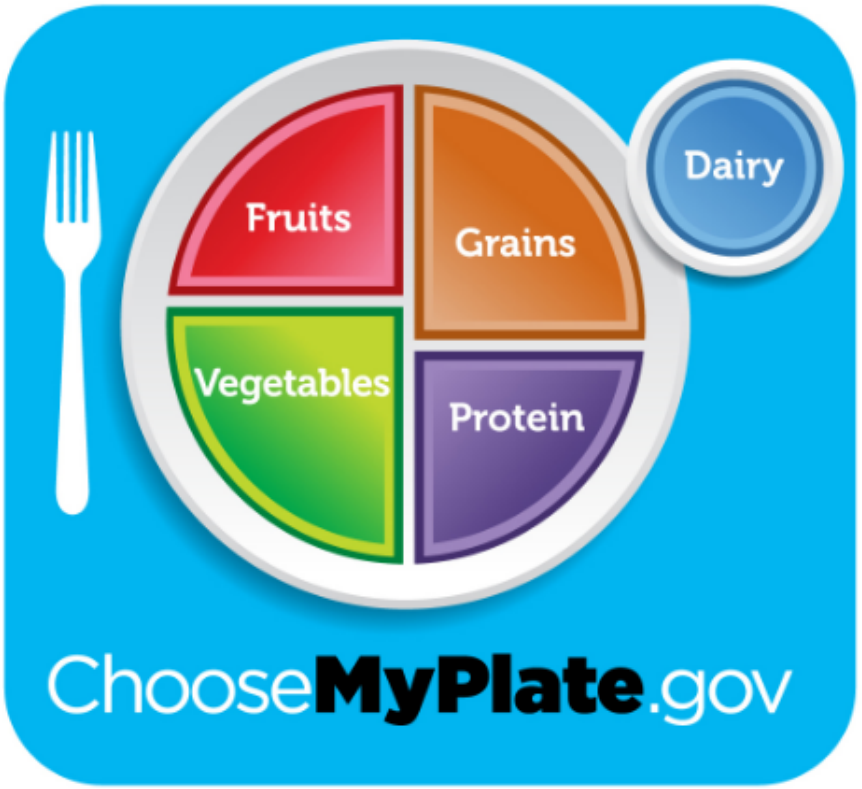

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Advisory: Replacing saturated fat with healthier fat could lower cardiovascular risks

By AMERICAN HEART ASSOCIATION NEWS

Replacing saturated fat with healthier fat in the diet lowers cardiovascular disease risk as much as cholesterol-lowering statin drugs, according to an American Heart Association advisory issued Thursday.

"This important paper reaffirms the scientific evidence that saturated fat raises LDL cholesterol, a leading cause of atherosclerosis," said Rachel Johnson, Ph.D., R.D., a professor of nutrition at the University of Vermont, who was not an advisory author. "Furthermore, replacing saturated fat with polyunsaturated fat reduces the incidence of cardiovascular disease."

J Nutr Metab. 2012; 2012: 539426.
Published online 2012 Apr 5. doi: 10.1155/2012/539426
PMCID: PMC3335257

Health Implications of High Dietary Omega-6 Polyunsaturated Fatty Acids

E. Patterson, [1,2] R. Wall, [1,2] G. F. Fitzgerald, [1,3] R. P. Ross, [1,2] and C. Stanton [1,2,*]

6. Conclusion

Go to:

Increases in the ratio of n-6 : n-3 PUFA, characteristic of the Western diet, could potentiate inflammatory processes and consequently predispose to or exacerbate many inflammatory diseases. The change in ratio and increase in n-6 PUFA consumption change the production of important mediators and regulators of inflammation and immune responses towards a proinflammatory profile. Chronic conditions such as CVD, diabetes, obesity, rheumatoid arthritis, and IBD are all associated with increased production of PGE_2, LTB_4, TXA_2, IL-1β, IL-6, and TNF-α, whereby the production of these factors increases with increased dietary intake of n-6 PUFA and decreased dietary intake of n-3 PUFA. In conclusion, the unbalanced dietary consumption of n-6 : n-3 PUFA is detrimental to human health, and so the impact of dietary supplementation with n-3 PUFA upon the alleviation of inflammatory diseases, more specifically, NAFLD needs to be more thoroughly investigated.

Drug Aimed at Inflammation May Lower Risk of Heart Disease and Cancer

By **DENISE GRADY** AUG. 27, 2017

Canakinumab, drug that fights inflammation, can reduce the risk of heart attacks and strokes in people who have already had a heart attack, a new study finds. Whitten Sabbatini for The New York Times

A drug that fights inflammation can reduce the risk of heart attacks and strokes, and possibly lung cancer, in people who have already had one heart attack and are at high risk for another, a new study finds.

6. Healthy eating patterns limit saturated and *trans* fats. Less than 10% of your daily calories should come from saturated fats. Foods that are high in saturated fat include butter, whole milk, meats that are not labeled as lean, and tropical oils such as coconut and palm oil. Saturated fats should be replaced with unsaturated fats, such as canola or olive oil
7. Healthy eating patterns limit sodium. Adults and children ages 14 years and over should limit sodium to less than 2,300 mg per day, and children younger than 14 years should consume even less. Use the Nutrition Facts label to check for sodium, especially in processed foods like pizza, pasta dishes, sauces, and soups.
8. Most Americans can benefit from making small shifts in their daily eating habits to improve their health over the long run. Small shifts in food choices—over the course of a week, a day, or even a meal—can make a difference in working toward a healthy eating pattern that works for you.
9. Remember physical activity! Regular physical activity is one of the most important things individuals can do to improve their health. According to the Department of Health and Human Services' Physical Activity Guidelines for Americans, adults need at least 150 minutes of moderate intensity physical activity each week and should perform muscle-strengthening exercises on two or more days each week. Children ages 6 to 17 years need at least 60 minutes of physical activity per day, including aerobic, muscle-strengthening, and bone-strengthening activities.
10. Everyone has a role– at home, schools, workplaces, communities, and food retail outlets – in encouraging easy, accessible, and affordable ways to support healthy choices.
    - At **home, you and your family** can try out small changes to find what works for you like adding more veggies to favorite dishes, planning meals and cooking at home, and incorporating physical activity into time with family or friends.
    - **Schools** can improve the selection of healthy food choices in cafeterias and vending machines, provide nutrition education programs and school gardens, increase school-based physical activity, and encourage parents and caregivers to promote healthy changes at home.
    - **Workplaces** can encourage walking or activity breaks; offer healthy food options in the cafeteria, vending machines, and at staff meetings or functions; and provide health and wellness programs and nutrition counseling.
    - **Communities** can increase access to affordable, healthy food choices through community gardens, farmers' markets, shelters, and food banks and create walkable communities by maintaining safe public spaces.
    - **Food retail outlets** can inform consumers about making healthy changes and provide healthy food choices.

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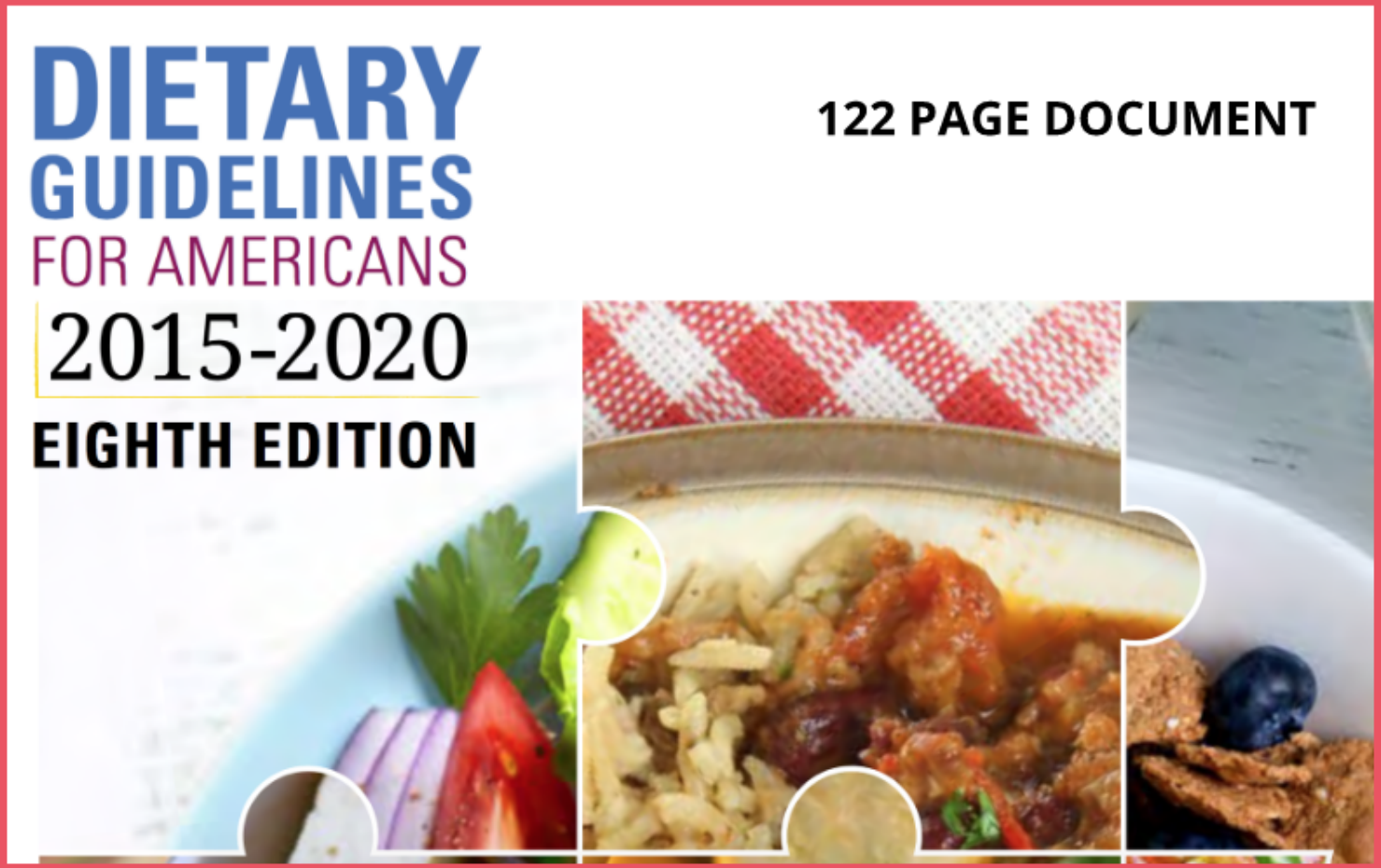
DIETARY
GUIDELINES
FOR AMERICANS
2015-2020
EIGHTH EDITION
122 PAGE DOCUMENT

2015-2020 USDA DIETARY GUIDELINES

1. A lifetime of healthy eating helps to prevent chronic diseases like obesity, heart disease, high blood pressure, and Type 2 diabetes.
2. Healthy eating is one of the most powerful tools we have to reduce the onset of disease. The Dietary Guidelines recommendations can help you make informed choices about eating for you and your family.
3. The path to improving health through nutrition is to follow a healthy eating pattern that's right for you. Eating patterns are the combination of foods and drinks you eat over time. A healthy eating pattern is adaptable to a person's taste preferences, traditions, culture and budget.
4. A healthy eating pattern includes:
   - A variety of vegetables: dark green, red and orange, legumes (beans and peas), starchy and other vegetables
   - Fruits, especially whole fruit
   - Grains, at least half of which are whole grain
   - Fat-free or low-fat dairy, including milk, yogurt, cheese, and/or fortified soy beverages
   - A variety of protein foods, including seafood, lean meats and poultry, eggs, legumes (beans and peas), soy products, and nuts and seeds
   - Oils, including those from plants: canola, corn, olive, peanut, safflower, soybean, and sunflower. Oils also are naturally present in nuts, seeds, seafood, olives, and avocados.
5. Healthy eating patterns limit added sugars. Less than 10% of your daily calories should come from added sugars. ChooseMyPlate.gov provides more information about added sugars, which are sugars and syrups that are added to foods or beverages when they are processed or prepared. This does not include naturally occurring sugars such as those consumed as part of milk and fruits.

MyPlate is a reminder to find your healthy eating style and build it throughout your lifetime. Everything you eat and drink matters. The right mix can help you be healthier now and in the future. This means:

- Focus on variety, amount, and nutrition.
- Choose foods and beverages with less saturated fat, sodium, and added sugars.
- Start with small changes to build healthier eating styles.
- Support healthy eating for everyone.

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INFLUENCES

1961

1984

1999

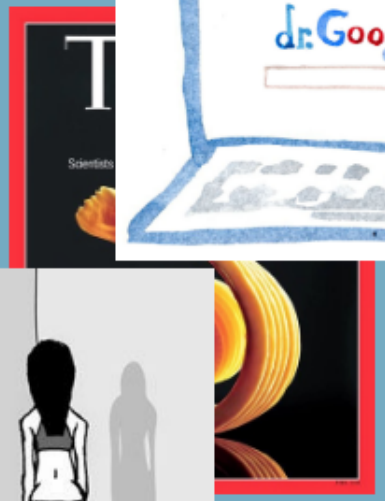
2014

INFLUENCES

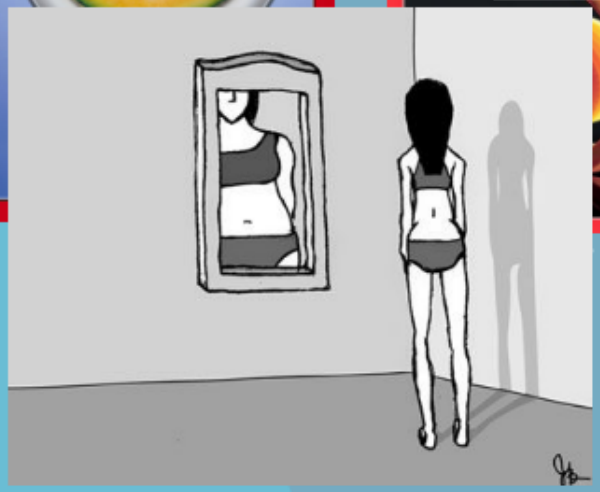

Diet & Health
TIME


People
GOING TO EXTREMES
PRESSURE TO BE THIN
STEVE IRWIN
His Widow's Heartache
OLIVIA NEWTON-JOHN
Her Grief Over Missing Boyfriend
LINDSAY LOHAN
Romantic Roller Coaster

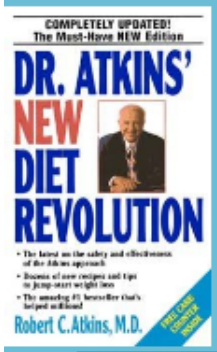

TIME
East Timor Decides

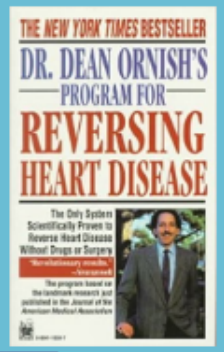


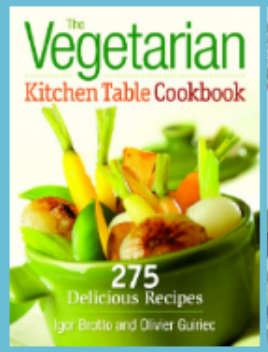

dr.Google

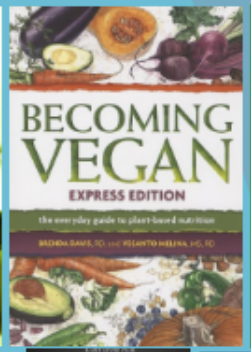


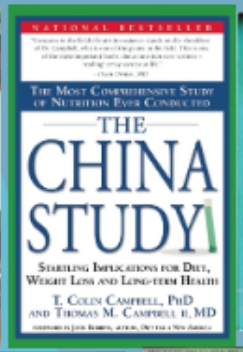
OPTIONS, OPTIONS, OPTIONS

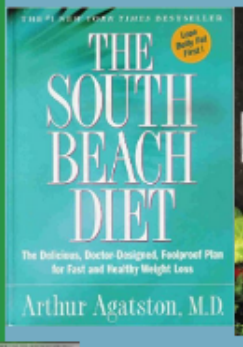


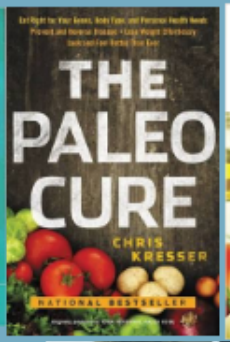


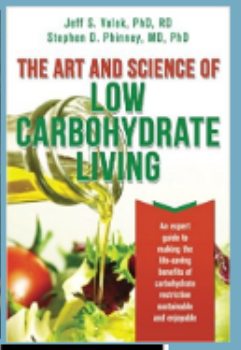


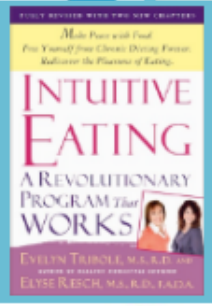




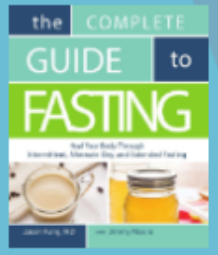


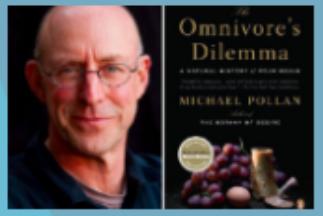


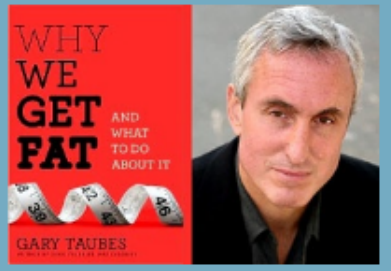




"Sugar does not cause diabetes"
Neal Barnard MD







PROGRAMS GALORE

Weight Watchers

Nutrisystem

ISAGENIX
Solutions to Transform Lives™

Slim-Fast!

jenny CRAIG

Curves

OPTIFAST®
The serious solution for weight loss™

HERBALIFE NUTRITION

Exercise mandatory?

Suggests 150 -250 minutes/week of moderate intensity exercise for modest weight loss. >250 minutes for clinically significant weight loss

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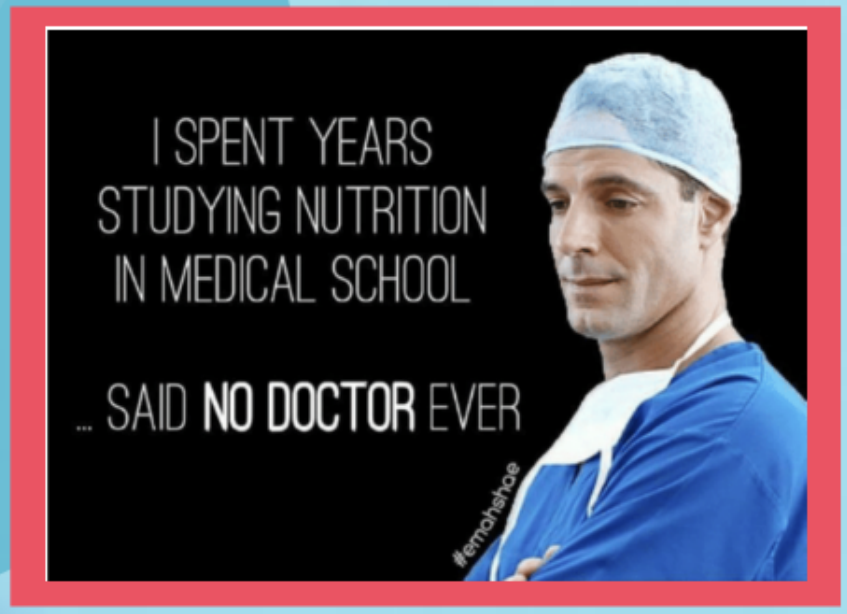
AMERICAN COLLEGE OF SPORTS MEDICINE
FOUNDED 1954
AMERICAN COLLEGE of SPORTS MEDICINE
TAE BO
moderate
loss. >250
eight loss
P90X
P90X
P90X
INSANITY
KUBEXFITNESS.COM
CrossFit
FORGING ELITE FITNESS
PERSONAL TRAINER

ASK YOUR DOCTOR

HOW MUCH DO THEY KNOW?

WHY?



HOW MUCH DO THEY KNOW?

HOW MUCH DO THEY KNOW?

ACADEMIC MEDICINE | AAMC
Journal of the Association of American Medical Colleges

- According to a 2010 report in Academic Medicine, US medical schools offer on 19.6 hours of nutrition education across 4 years of medical school.

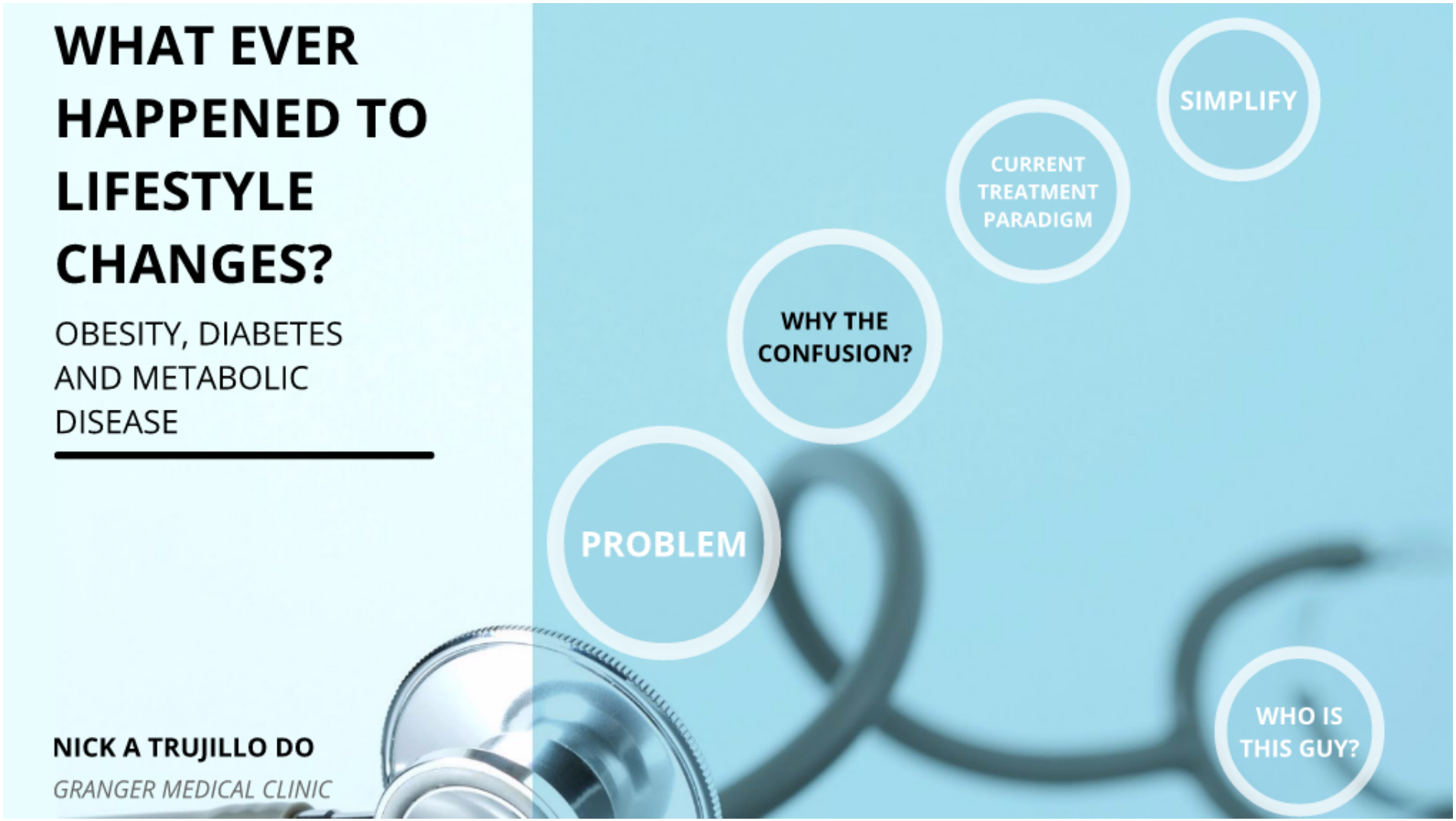
HOW MUCH DO THEY KNOW?

HOW MUCH DO THEY KNOW?

In a 2016 study, researchers at Case Western Reserve University examined data from 25 family med, internal med and OBGYN residency programs throughout Ohio. They found these programs averaged 2.8 hours of instruction on obesity, nutrition, and physical activity counseling.

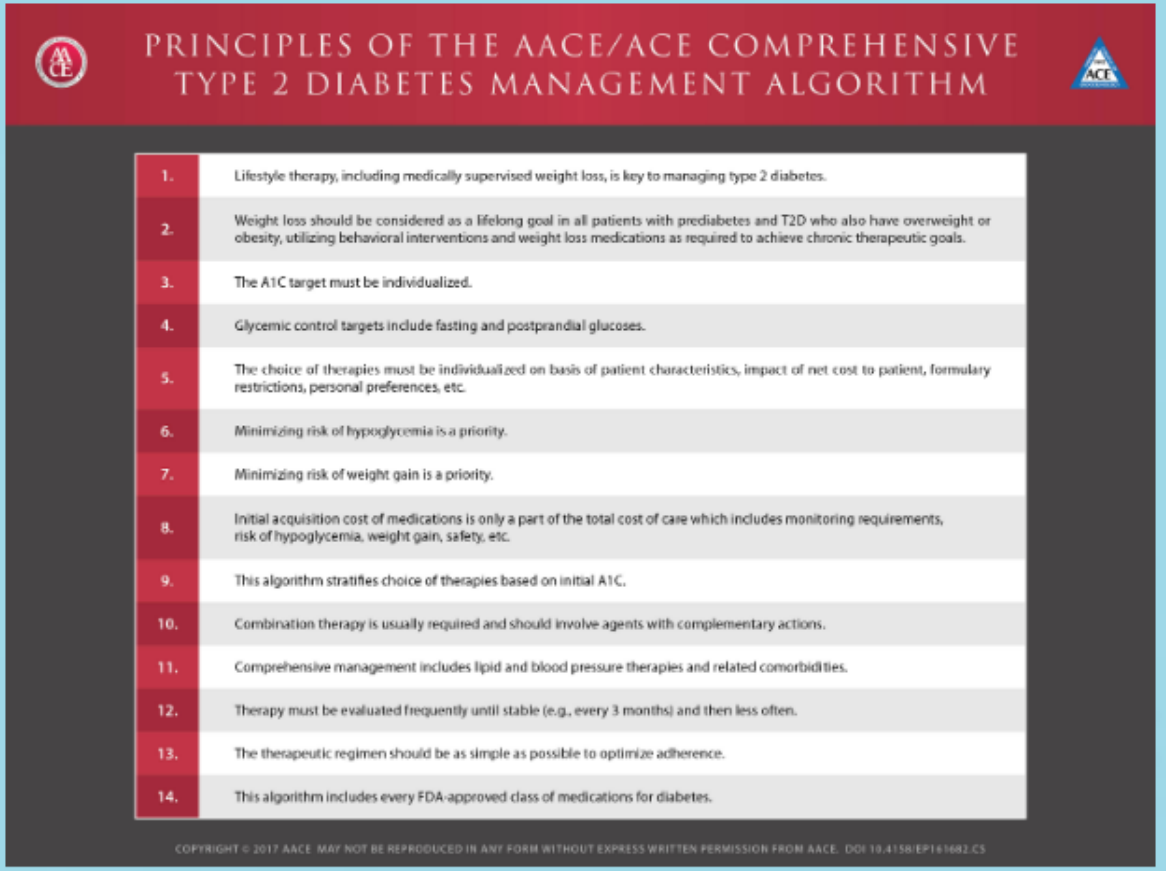
WHY?

- Overcrowded med school curricula
- Education focused on board exam content
- Lack of time and compensation
- Culture of medicine is increasingly focused on pharmacologic treatments rather than lifestyle modifications
- Both patients and providers want quick results. Dietary and lifestyle changes are time intensive and yield slower results


WHAT EVER HAPPENED TO LIFESTYLE CHANGES?
OBESITY, DIABETES AND METABOLIC DISEASE
NICK A TRUJILLO DO
GRANGER MEDICAL CLINIC
SIMPLIFY
CURRENT TREATMENT PARADIGM
WHY THE CONFUSION?
PROBLEM
WHO IS THIS GUY?

CURRENT TREATMENT PARADIGM

CURRENT TREATMENT PARADIGM



PRINCIPLES OF THE AACE/ACE COMPREHENSIVE TYPE 2 DIABETES MANAGEMENT ALGORITHM

1.	Lifestyle therapy, including medically supervised weight loss, is key to managing type 2 diabetes.
2.	Weight loss should be considered as a lifelong goal in all patients with prediabetes and T2D who also have overweight or obesity, utilizing behavioral interventions and weight loss medications as required to achieve chronic therapeutic goals.
3.	The A1C target must be individualized.
4.	Glycemic control targets include fasting and postprandial glucoses.
5.	The choice of therapies must be individualized on basis of patient characteristics, impact of net cost to patient, formulary restrictions, personal preferences, etc.
6.	Minimizing risk of hypoglycemia is a priority.
7.	Minimizing risk of weight gain is a priority.
8.	Initial acquisition cost of medications is only a part of the total cost of care which includes monitoring requirements, risk of hypoglycemia, weight gain, safety, etc.
9.	This algorithm stratifies choice of therapies based on initial A1C.
10.	Combination therapy is usually required and should involve agents with complementary actions.
11.	Comprehensive management includes lipid and blood pressure therapies and related comorbidities.
12.	Therapy must be evaluated frequently until stable (e.g., every 3 months) and then less often.
13.	The therapeutic regimen should be as simple as possible to optimize adherence.
14.	This algorithm includes every FDA-approved class of medications for diabetes.

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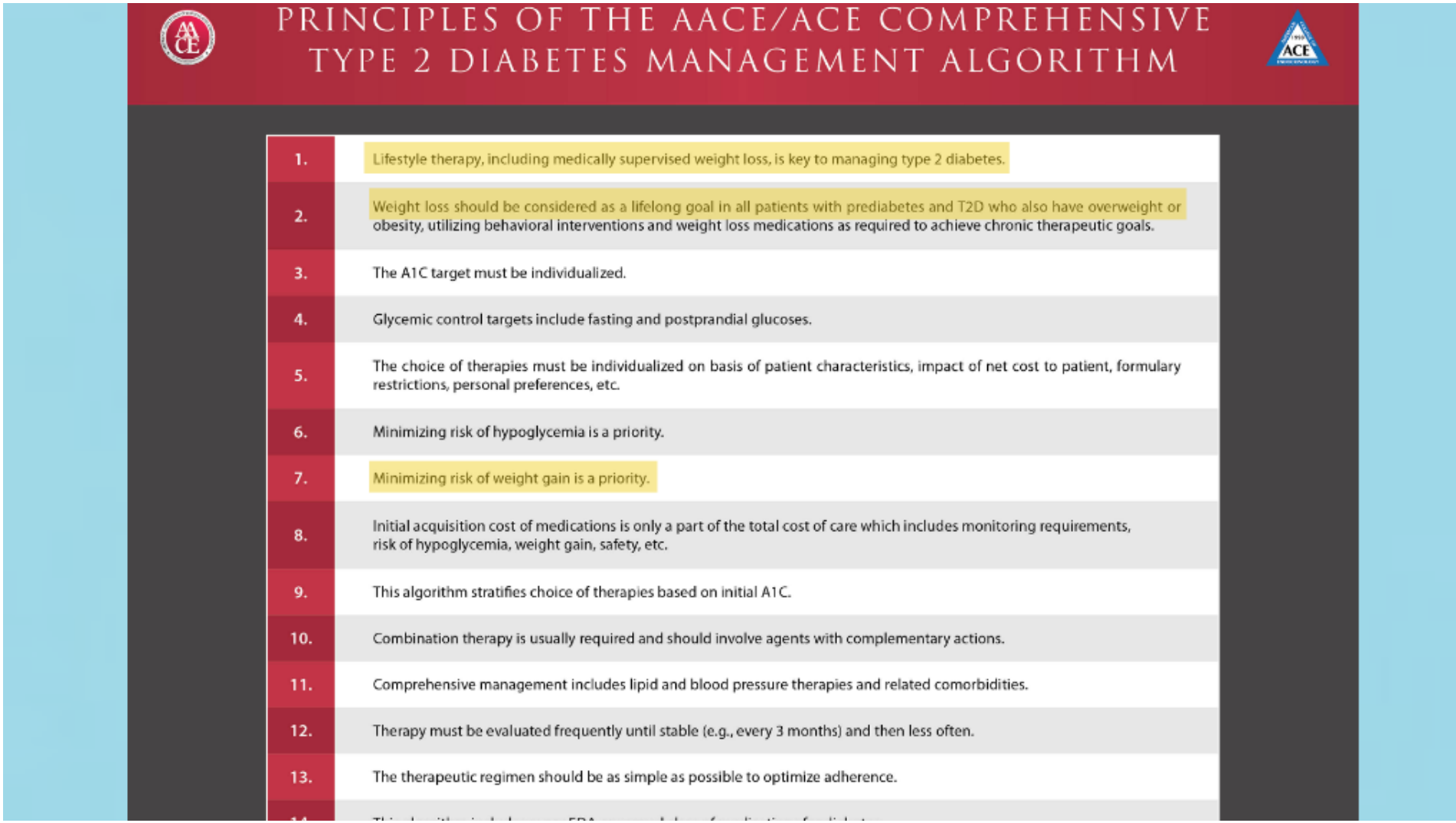
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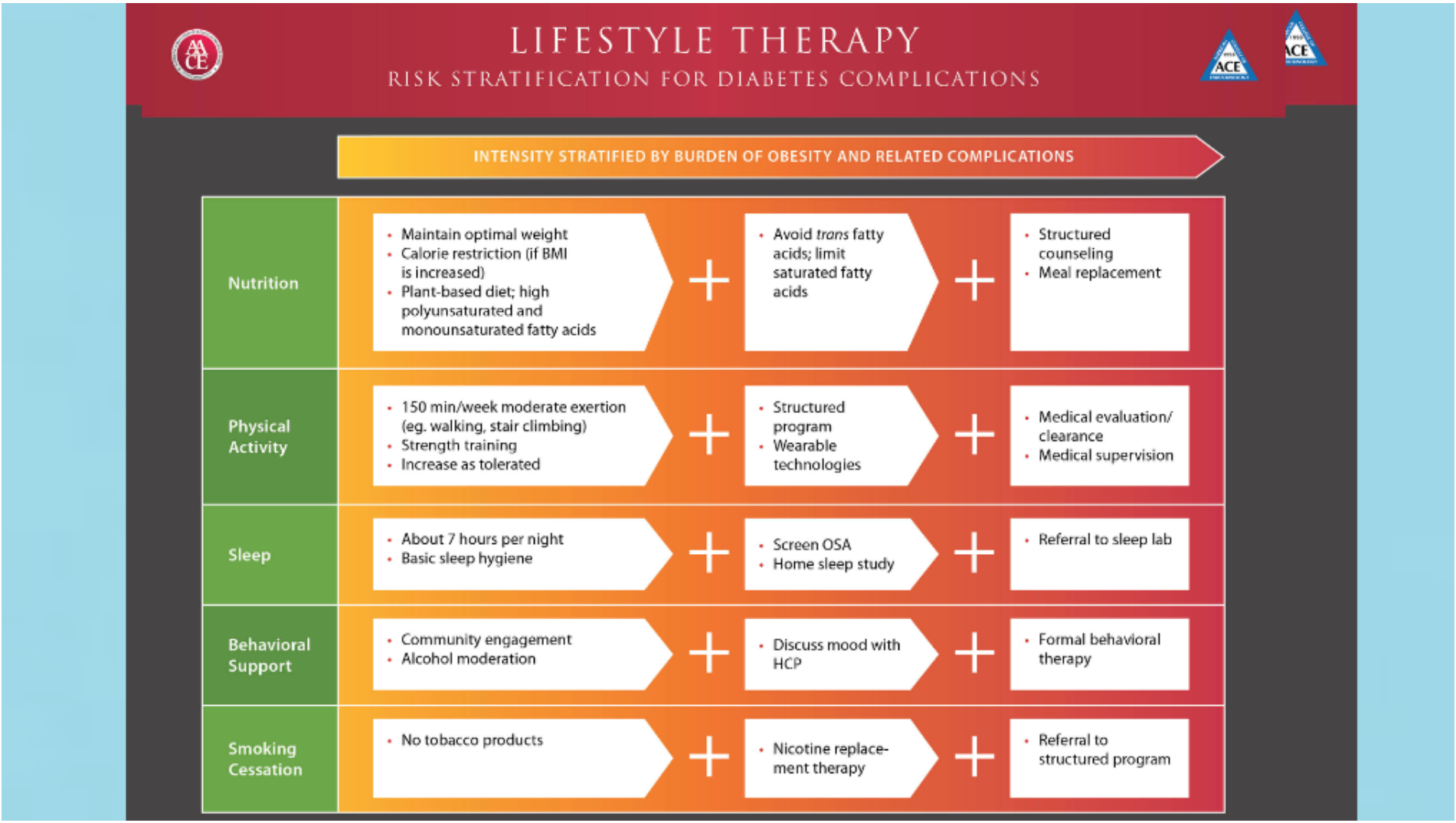
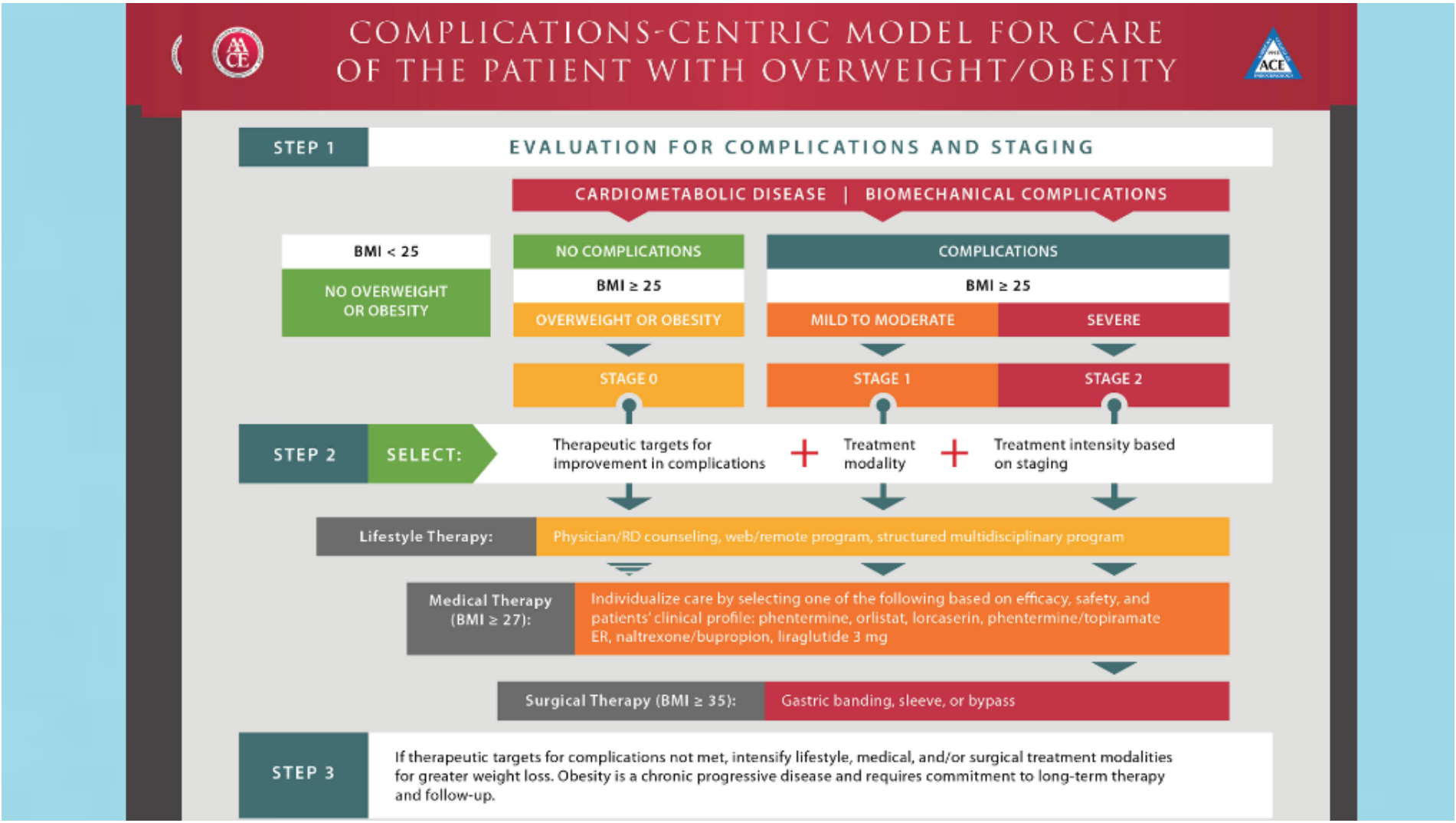
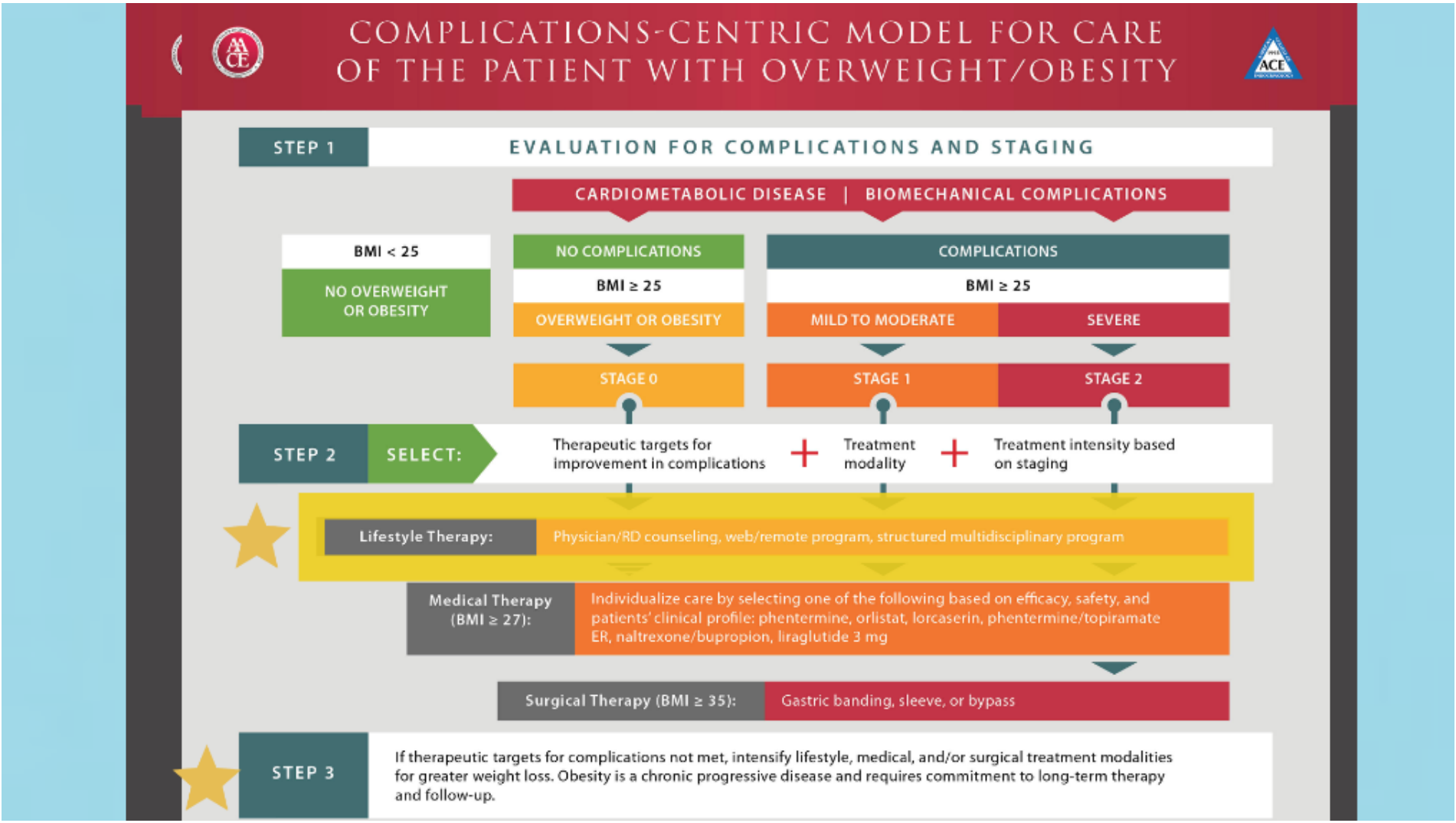

LIFESTYLE THERAPY
RISK STRATIFICATION FOR DIABETES COMPLICATIONS
INTENSITY STRATIFIED BY BURDEN OF OBESITY AND RELATED COMPLICATIONS
Nutrition
Maintain optimal weight
Calorie restriction (if BMI is increased)
Plant-based diet; high polyunsaturated and monounsaturated fatty acids
Avoid trans fatty acids; limit saturated fatty acids
Structured counseling
Meal replacement
Physical Activity
150 min/week moderate exertion (eg. walking, stair climbing)
Strength training
Increase as tolerated
Structured program
Wearable technologies
Medical evaluation/ clearance
Medical supervision
Sleep
About 7 hours per night
Basic sleep hygiene
Screen OSA
Home sleep study
Referral to sleep lab
Behavioral Support
Community engagement
Alcohol moderation
Discuss mood with HCP
Formal behavioral therapy
Smoking Cessation
No tobacco products
Nicotine replace-ment therapy
Referral to structured program


COMPLICATIONS-CENTRIC MODEL FOR CARE OF THE PATIENT WITH OVERWEIGHT/OBESITY
STEP 1
EVALUATION FOR COMPLICATIONS AND STAGING
CARDIOMETABOLIC DISEASE | BIOMECHANICAL COMPLICATIONS
BMI < 25
NO OVERWEIGHT OR OBESITY
NO COMPLICATIONS
BMI ≥ 25
OVERWEIGHT OR OBESITY
COMPLICATIONS
BMI ≥ 25
MILD TO MODERATE
SEVERE
STAGE 0
STAGE 1
STAGE 2
STEP 2
SELECT:
Therapeutic targets for improvement in complications
+
Treatment modality
+
Treatment intensity based on staging
Lifestyle Therapy:
Physician/RD counseling, web/remote program, structured multidisciplinary program
Medical Therapy (BMI ≥ 27):
Individualize care by selecting one of the following based on efficacy, safety, and patients' clinical profile: phentermine, orlistat, lorcaserin, phentermine/topiramate ER, naltrexone/bupropion, liraglutide 3 mg
Surgical Therapy (BMI ≥ 35):
Gastric banding, sleeve, or bypass
STEP 3
If therapeutic targets for complications not met, intensify lifestyle, medical, and/or surgical treatment modalities for greater weight loss. Obesity is a chronic progressive disease and requires commitment to long-term therapy and follow-up.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NO OVERWEIGHT OR OBESITY
NO COMPLICATIONS
BMI ≥ 25
OVERWEIGHT OR OBESITY
COMPLICATIONS
BMI ≥ 25
MILD TO MODERATE
SEVERE
STAGE 0
STAGE 1
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SELECT:
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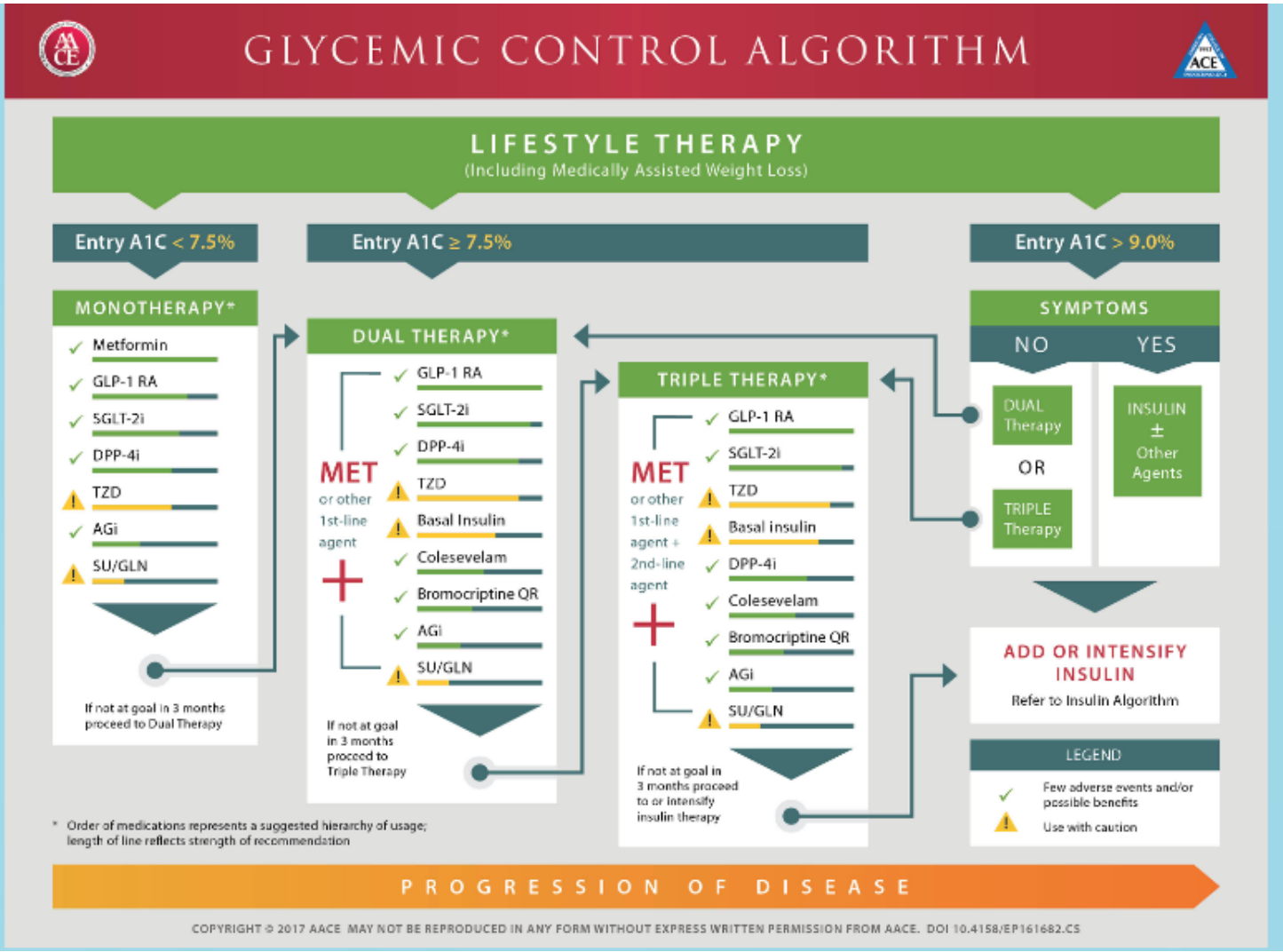
If therapeutic targets for complications not met, intensify lifestyle, medical, and/or surgical treatment modalities for greater weight loss. Obesity is a chronic progressive disease and requires commitment to long-term therapy and follow-up.

2017 AACE GLYCEMIC CONTROL ALGORITHM


GLYCEMIC CONTROL ALGORITHM
LIFESTYLE THERAPY
(Including Medically Assisted Weight Loss)
Entry A1C < 7.5%
Entry A1C ≥ 7.5%
Entry A1C > 9.0%
MONOTHERAPY*
Metformin
GLP-1 RA
SGLT-2i
DPP-4i
TZD
AGi
SU/GLN
If not at goal in 3 months proceed to Dual Therapy
DUAL THERAPY*
MET
or other 1st-line agent
+
GLP-1 RA
SGLT-2i
DPP-4i
TZD
Basal Insulin
Colesevelam
Bromocriptine QR
AGi
SU/GLN
If not at goal in 3 months proceed to Triple Therapy
TRIPLE THERAPY*
MET
or other 1st-line agent + 2nd-line agent
+
GLP-1 RA
SGLT-2i
TZD
Basal insulin
DPP-4i
Colesevelam
Bromocriptine QR
AGi
SU/GLN
If not at goal in 3 months proceed to or intensify insulin therapy
SYMPTOMS
NO
YES
DUAL Therapy
OR
TRIPLE Therapy
INSULIN ± Other Agents
ADD OR INTENSIFY INSULIN
Refer to Insulin Algorithm
LEGEND
Few adverse events and/or possible benefits
Use with caution
* Order of medications represents a suggested hierarchy of usage; length of line reflects strength of recommendation
PROGRESSION OF DISEASE
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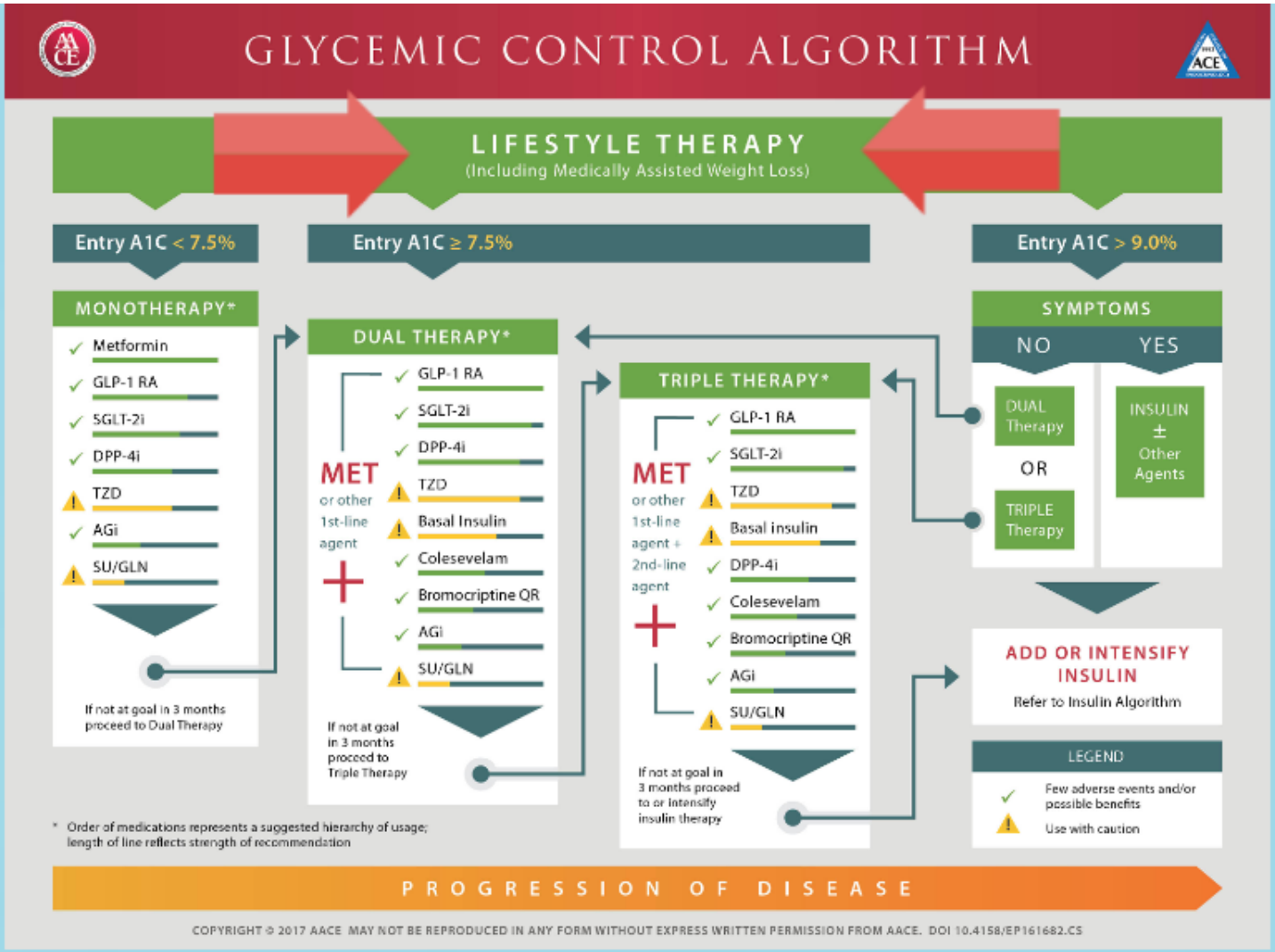

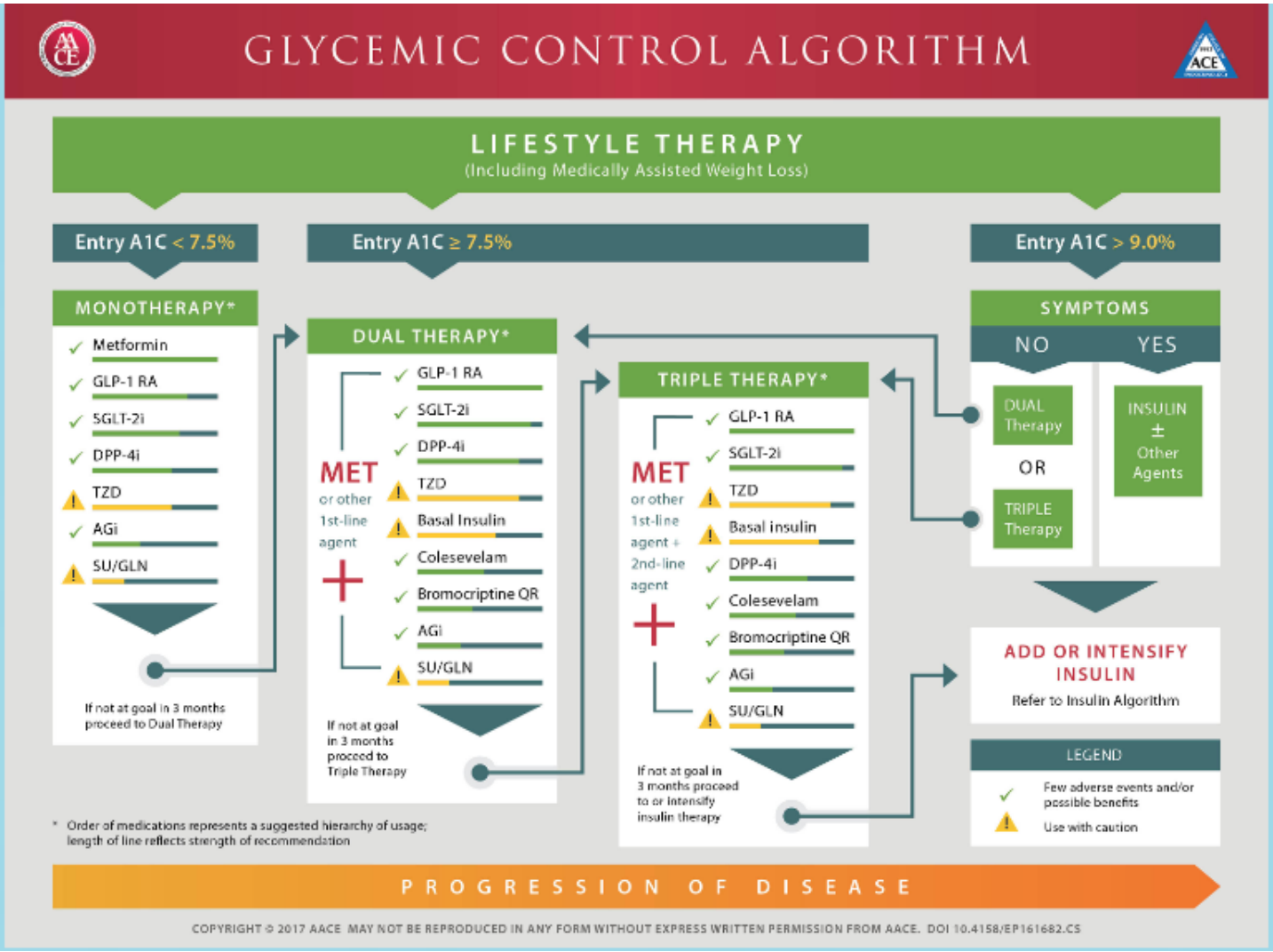
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Bromocriptine QR
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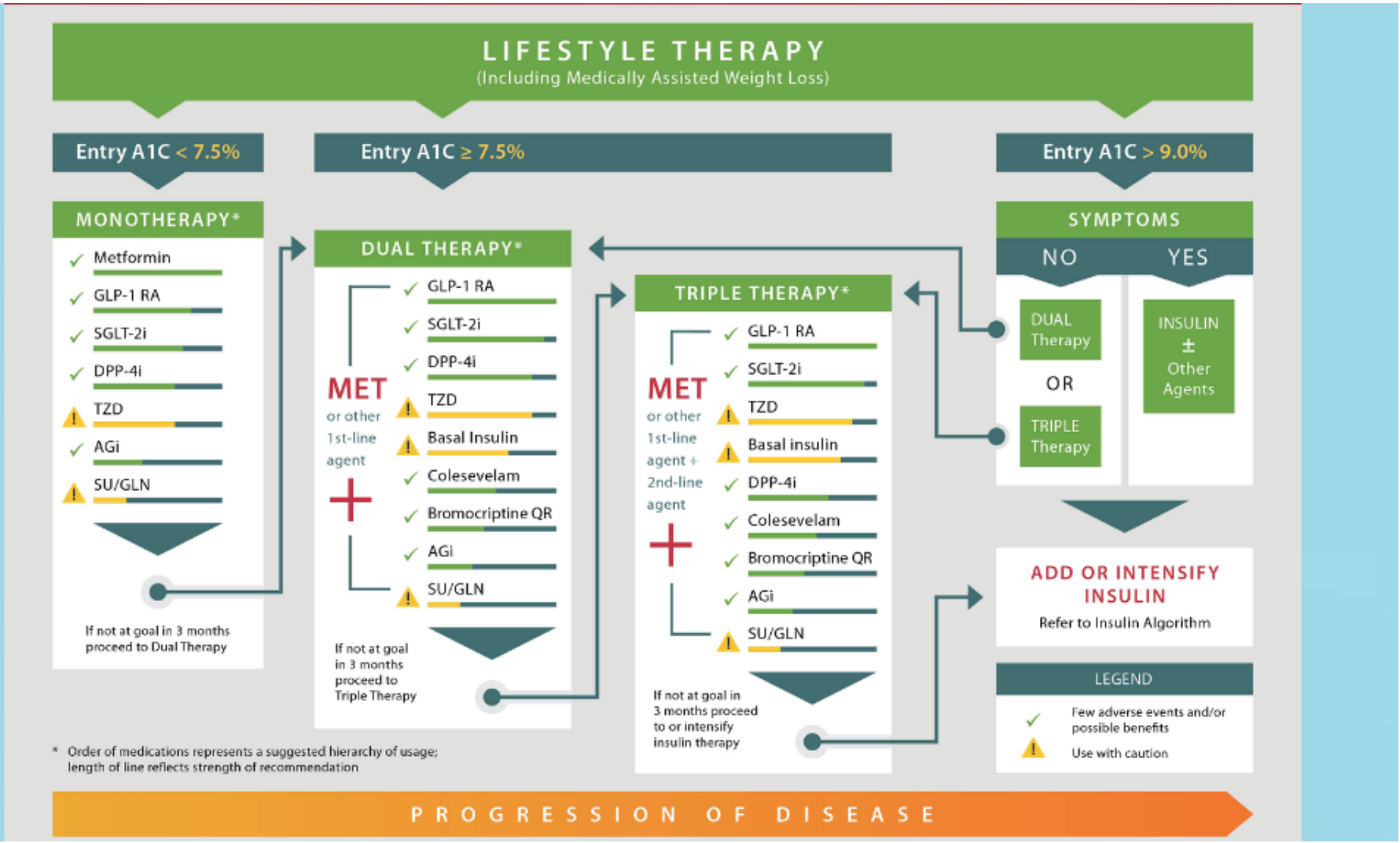
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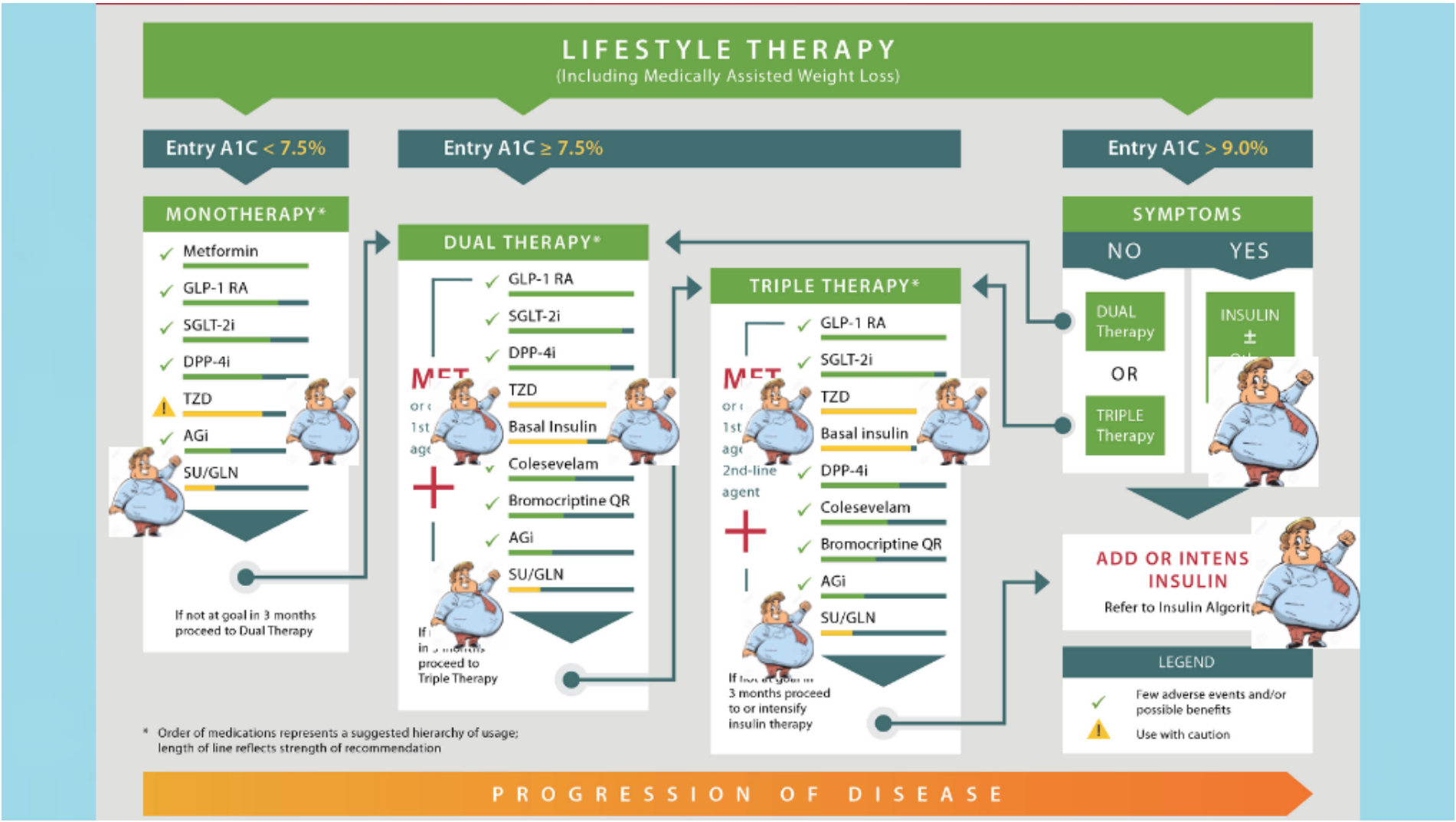
PROGRESSION OF DISEASE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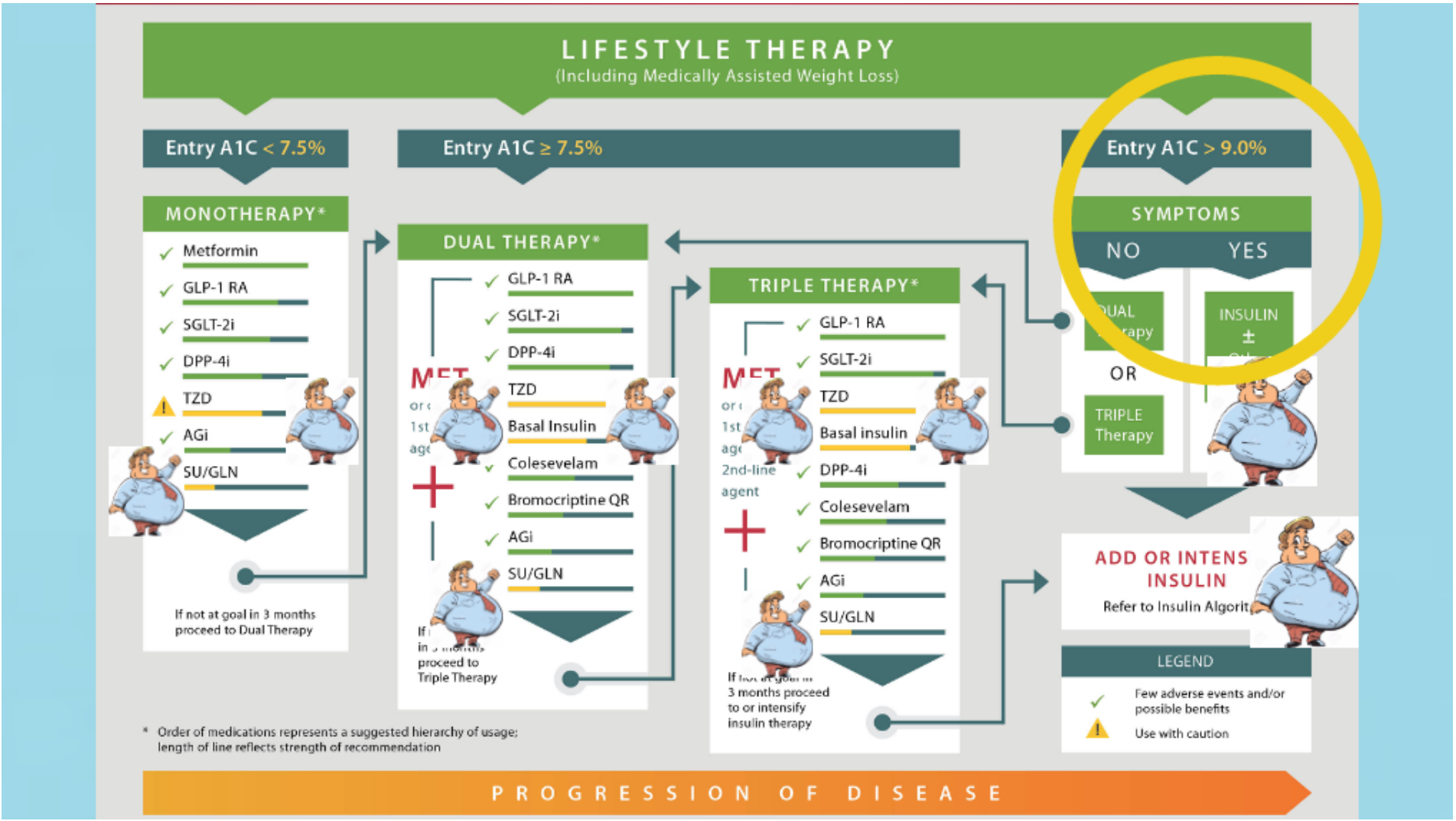
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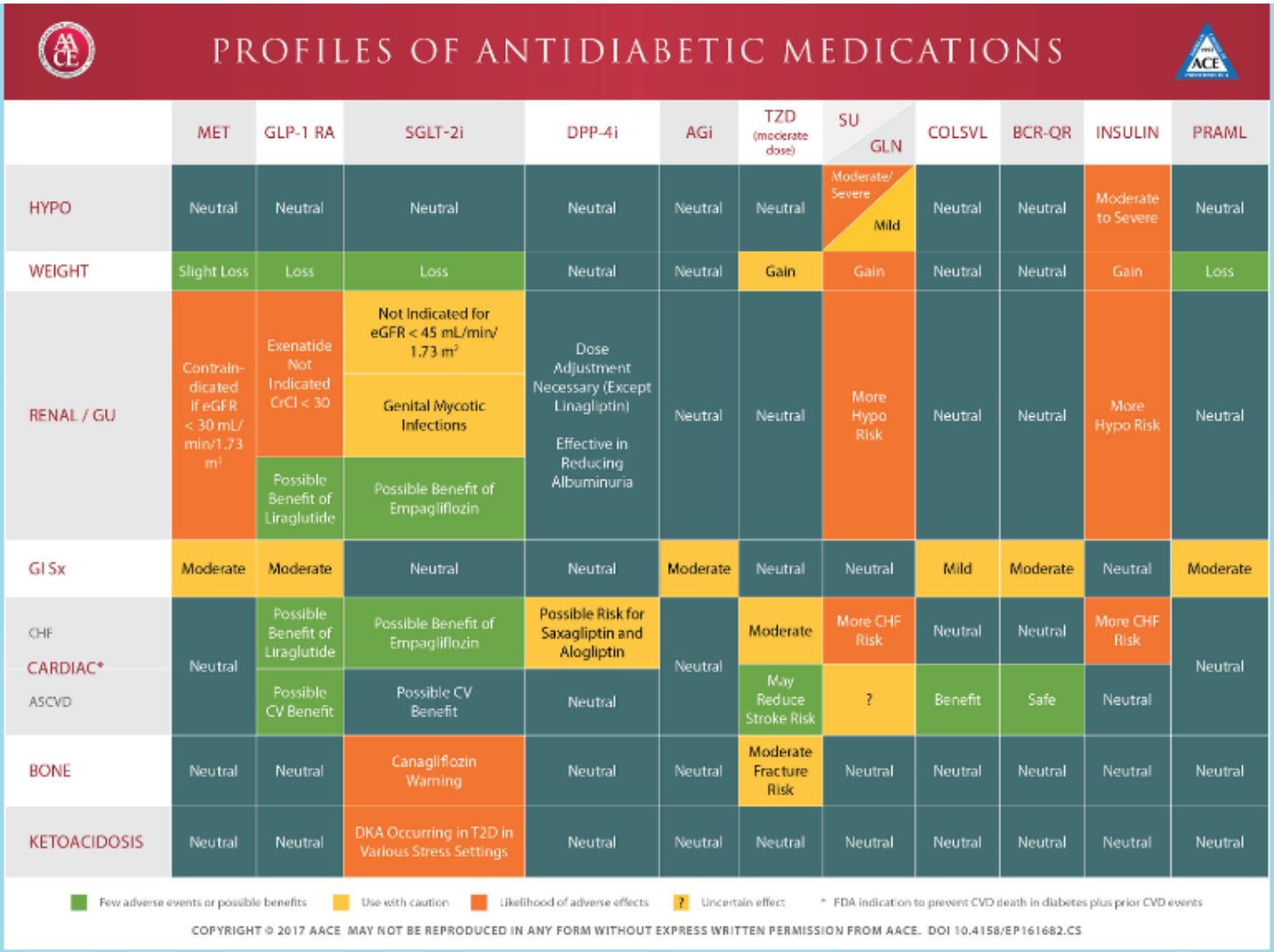
PROFILES OF ANTIDIABETIC MEDICATIONS
MET
GLP-1 RA
SGLT-2i
DPP-4i
AGi
TZD (moderate dose)
SU
GLN
COLSVL
BCR-QR
INSULIN
PRAML
HYPO
Neutral
Neutral
Neutral
Neutral
Neutral
Neutral
Moderate/ Severe
Mild
Neutral
Neutral
Moderate to Severe
Neutral
WEIGHT
Slight Loss
Loss
Loss
Neutral
Neutral
Gain
Gain
Neutral
Neutral
Gain
Loss
RENAL / GU
Contrain-dicated if eGFR < 30 mL/ min/1.73 m²
Exenatide Not Indicated CrCl < 30
Possible Benefit of Liraglutide
Not Indicated for eGFR < 45 mL/min/ 1.73 m²
Genital Mycotic Infections
Possible Benefit of Empagliflozin
Dose Adjustment Necessary (Except Linagliptin)
Effective in Reducing Albuminuria
Neutral
Neutral
More Hypo Risk
Neutral
Neutral
More Hypo Risk
Neutral
GI Sx
Moderate
Moderate
Neutral
Neutral
Moderate
Neutral
Neutral
Mild
Moderate
Neutral
Moderate
CHF
CARDIAC*
ASCVD
Neutral
Possible Benefit of Liraglutide
Possible CV Benefit
Possible Benefit of Empagliflozin
Possible CV Benefit
Possible Risk for Saxagliptin and Alogliptin
Neutral
Neutral
Moderate
May Reduce Stroke Risk
More CHF Risk
?
Neutral
Benefit
Neutral
Safe
More CHF Risk
Neutral
Neutral
BONE
Neutral
Neutral
Canagliflozin Warning
Neutral
Neutral
Moderate Fracture Risk
Neutral
Neutral
Neutral
Neutral
Neutral
KETOACIDOSIS
Neutral
Neutral
DKA Occurring in T2D in Various Stress Settings
Neutral
Neutral
Neutral
Neutral
Neutral
Neutral
Neutral
Neutral
Few adverse events or possible benefits
Use with caution
Likelihood of adverse effects
? Uncertain effect
* FDA indication to prevent CVD death in diabetes plus prior CVD events
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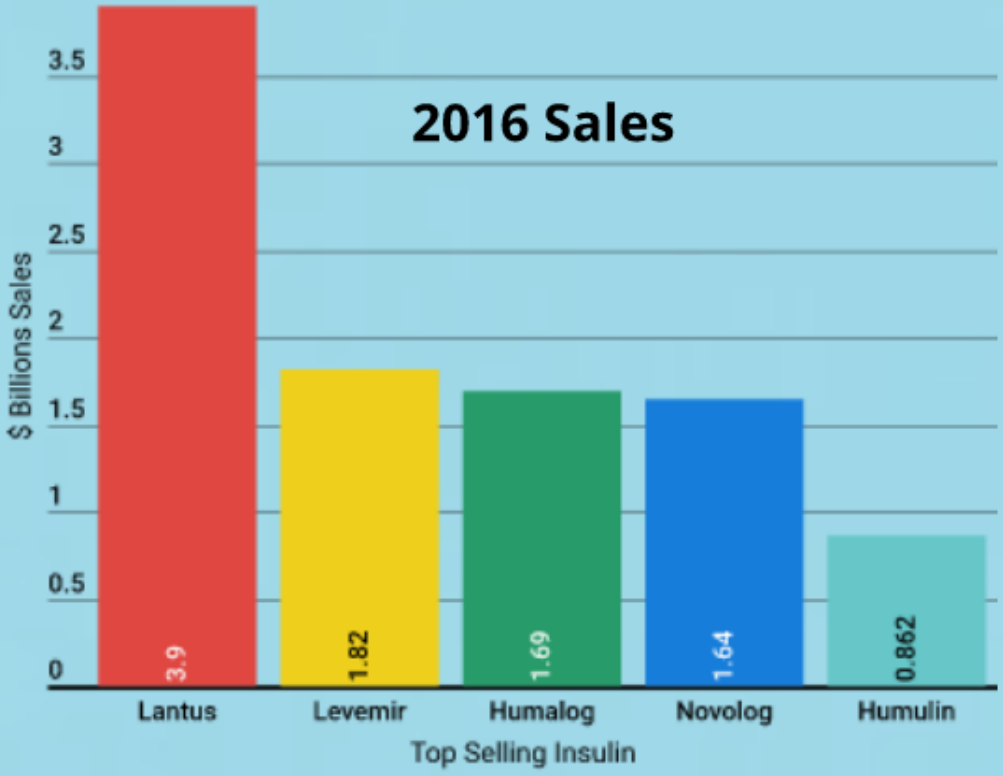
PROFILES OF ANTIDIABETIC MEDICATIONS

	MET	GLP-1 RA	SGLT-2i	DPP-4i	AGi	TZD (moderate dose)	SU / GLN	COLSVL	BCR-QR	INSULIN	PRAML
HYPO	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Moderate/Severe / Mild	Neutral	Neutral	Moderate to Severe	Neutral
WEIGHT	Slight Loss	Loss	Loss	Neutral	Neutral	Gain	Gain	Neutral	Neutral	Gain	Loss
RENAL / GU	Contrain-dicated if eGFR < 30 mL/min/1.73 m^2	Exenatide Not Indicated CrCl < 30	Not Indicated for eGFR < 45 mL/min/1.73 m^2	Dose Adjustment Necessary (Except Linagliptin) Effective in Reducing Albuminuria	Neutral	Neutral	More Hypo Risk	Neutral	Neutral	More Hypo Risk	Neutral
			Genital Mycotic Infections								
		Possible Benefit of Liraglutide	Possible Benefit of Empagliflozin								
GI Sx	Moderate	Moderate	Neutral	Neutral	Moderate	Neutral	Neutral	Mild	Moderate	Neutral	Moderate
CHF	Neutral	Possible Benefit of Liraglutide	Possible Benefit of Empagliflozin	Possible Risk for Saxagliptin and Alogliptin	Neutral	Moderate	More CHF Risk	Neutral	Neutral	More CHF Risk	Neutral
CARDIAC*		Possible	Possible CV			May Reduce	?	Benefit	Safe	Neutral	

PROFILES OF ANTIDIABETIC MEDICATIONS

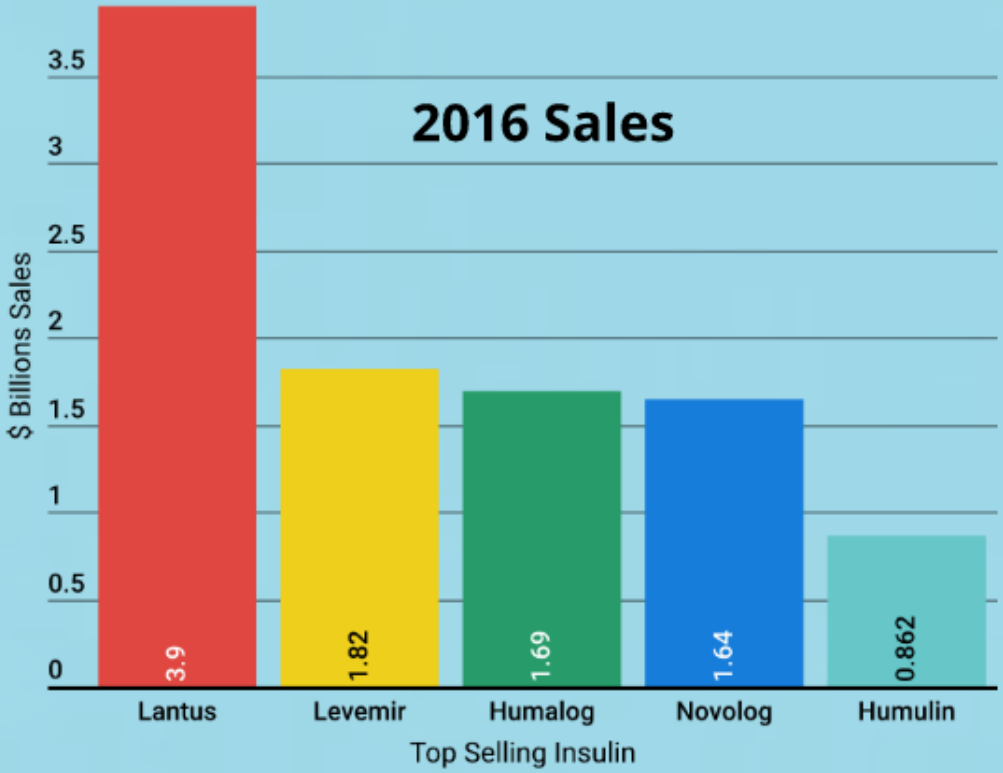
	MET	GLP-1 RA	SGLT-2i	DPP-4i	AGi	TZD (moderate dose)	SU / GLN	COLSVL	BCR-QR	INSULIN	PRAML
HYPO	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Moderate/Severe / Mild	Neutral	Neutral	Moderate to Severe	Neutral
WEIGHT	Slight Loss	Loss	Loss	Neutral	Neutral	Gain	Gain	Neutral	Neutral	Gain	Loss
RENAL / GU	Contrain-dicated if eGFR < 30 mL/min/1.73 m^2	Exenatide Not Indicated CrCl < 30 Possible Benefit of Liraglutide	Not Indicated for eGFR < 45 mL/min/1.73 m^2 Genital Mycotic Infections Possible Benefit of Empagliflozin	Dose Adjustment Necessary (Except Linagliptin) Effective in Reducing Albuminuria	Neutral	Neutral	More Hypo Risk	Neutral	Neutral	More Hypo Risk	Neutral
GI Sx	Moderate	Moderate	Neutral	Neutral	Moderate	Neutral	Neutral	Mild	Moderate	Neutral	Moderate
CHF CARDIAC*	Neutral	Possible Benefit of Liraglutide Possible	Possible Benefit of Empagliflozin Possible CV	Possible Risk for Saxagliptin and Alogliptin Neutral	Neutral	Moderate May Reduce	More CHF Risk ?	Neutral Benefit	Neutral Safe	More CHF Risk Neutral	Neutral

$$CASH MONEY$$


2016 Sales
$ Billions Sales
3.5
3
2.5
2
1.5
1
0.5
0
3.9
1.82
1.69
1.64
0.862
Lantus
Levemir
Humalog
Novolog
Humulin
Top Selling Insulin


insulin
100 units/ml

$$CASH MONEY$$


2016 Sales
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3.5
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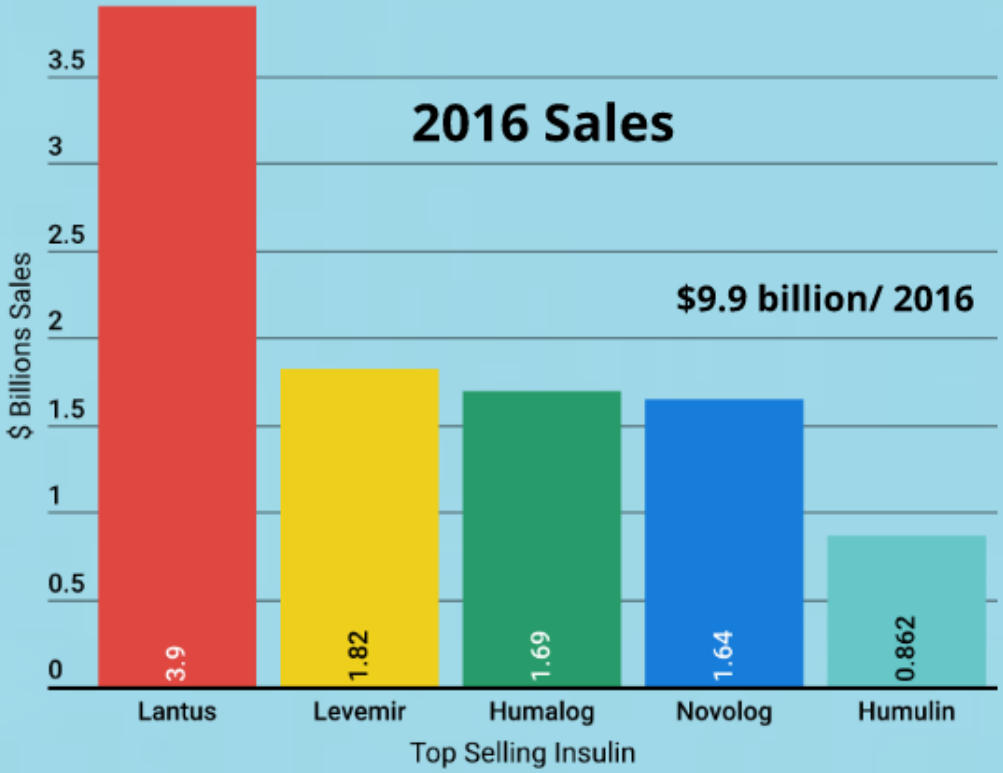
2016 Sales
$9.9 billion/ 2016
$ Billions Sales
3.5
3
2.5
2
1.5
1
0.5
0
3.9
1.82
1.69
1.64
0.862
Lantus
Levemir
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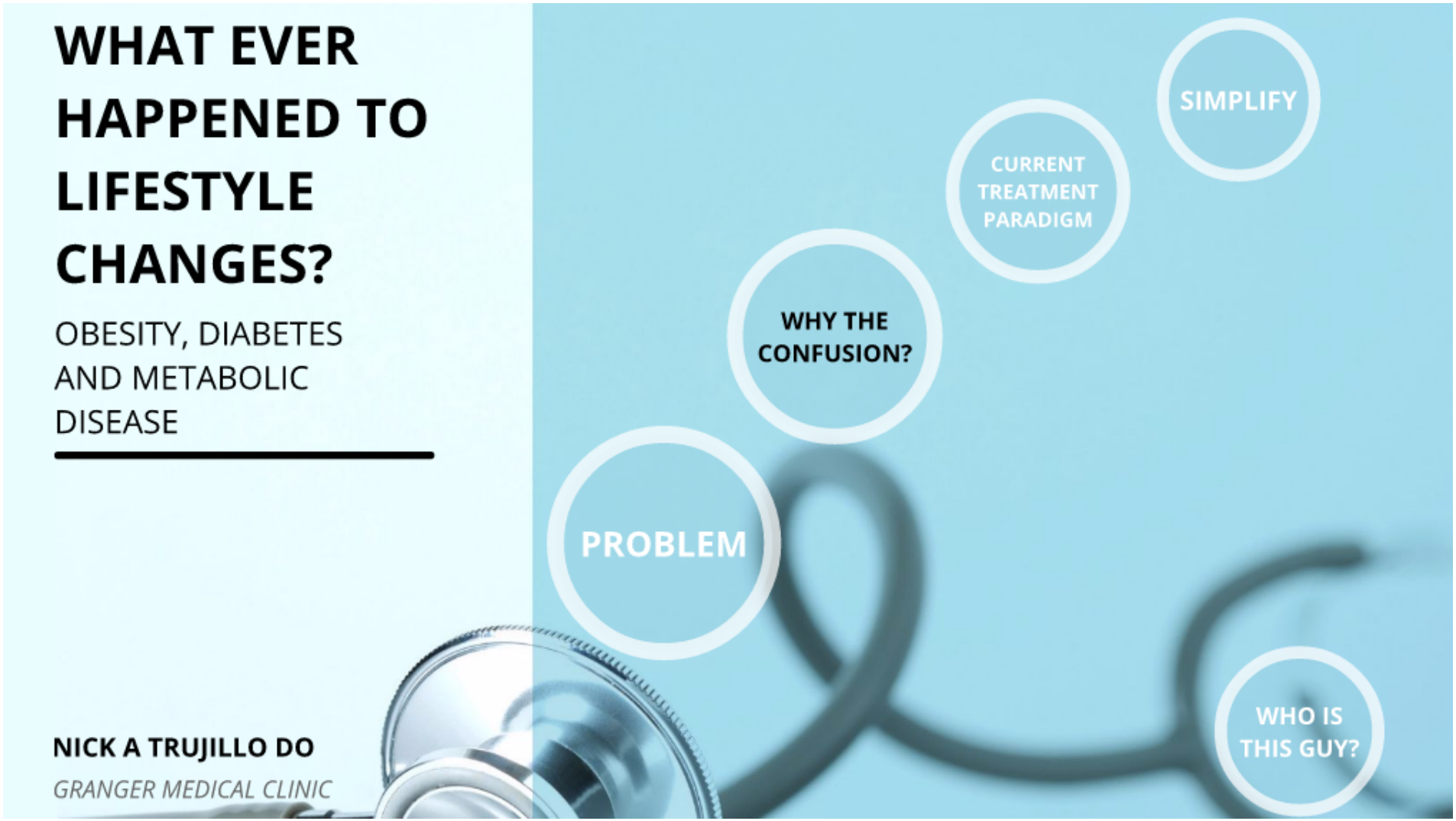
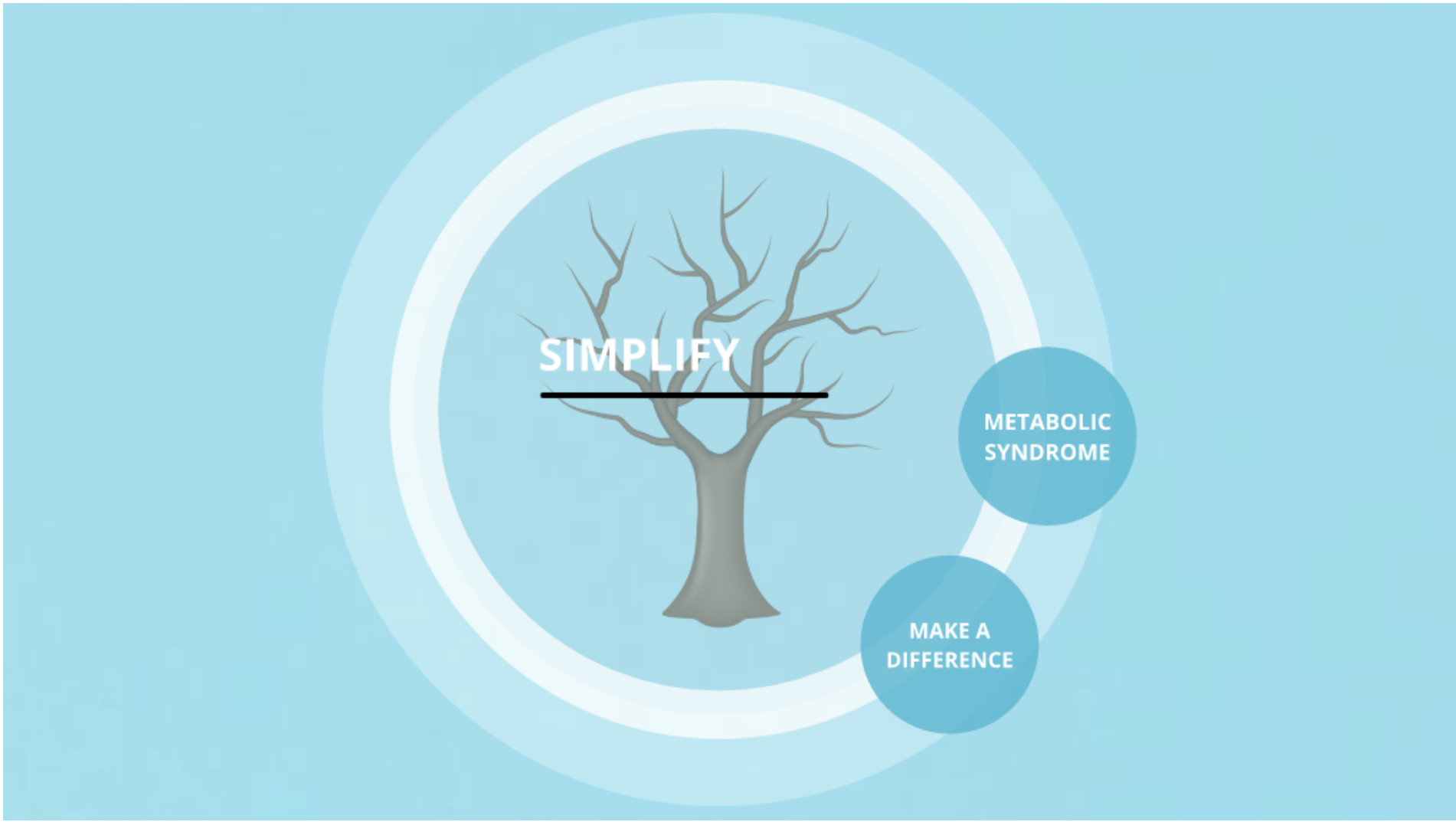
Humulin
Top Selling Insulin

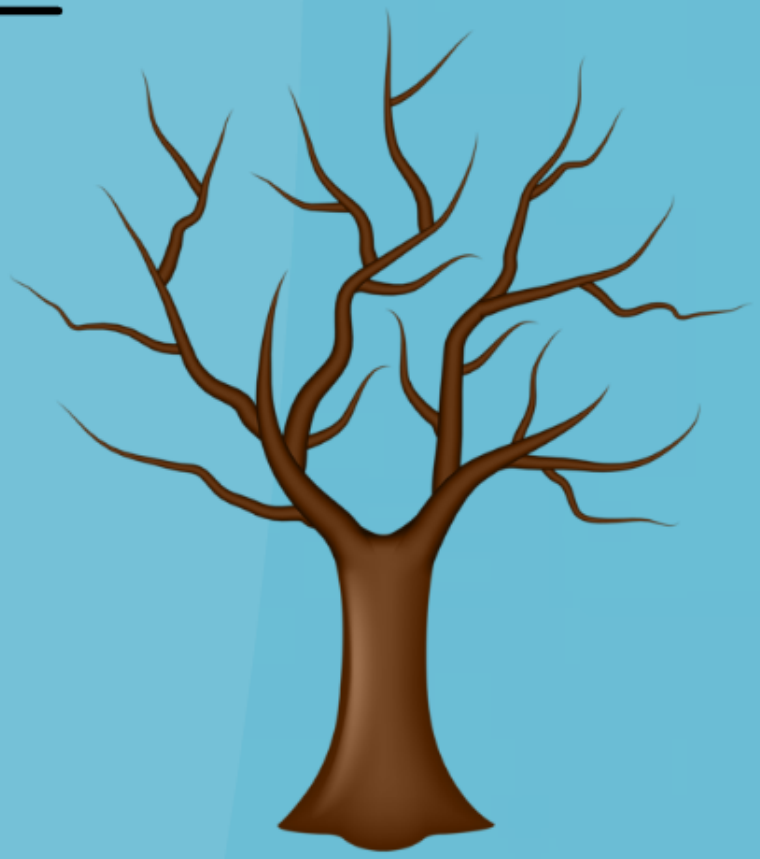
$$CASH MONEY$$

"First, do no harm. After that, go nuts."


WHAT EVER HAPPENED TO LIFESTYLE CHANGES?
OBESITY, DIABETES AND METABOLIC DISEASE
NICK A TRUJILLO DO
GRANGER MEDICAL CLINIC
SIMPLIFY
CURRENT TREATMENT PARADIGM
WHY THE CONFUSION?
PROBLEM
WHO IS THIS GUY?

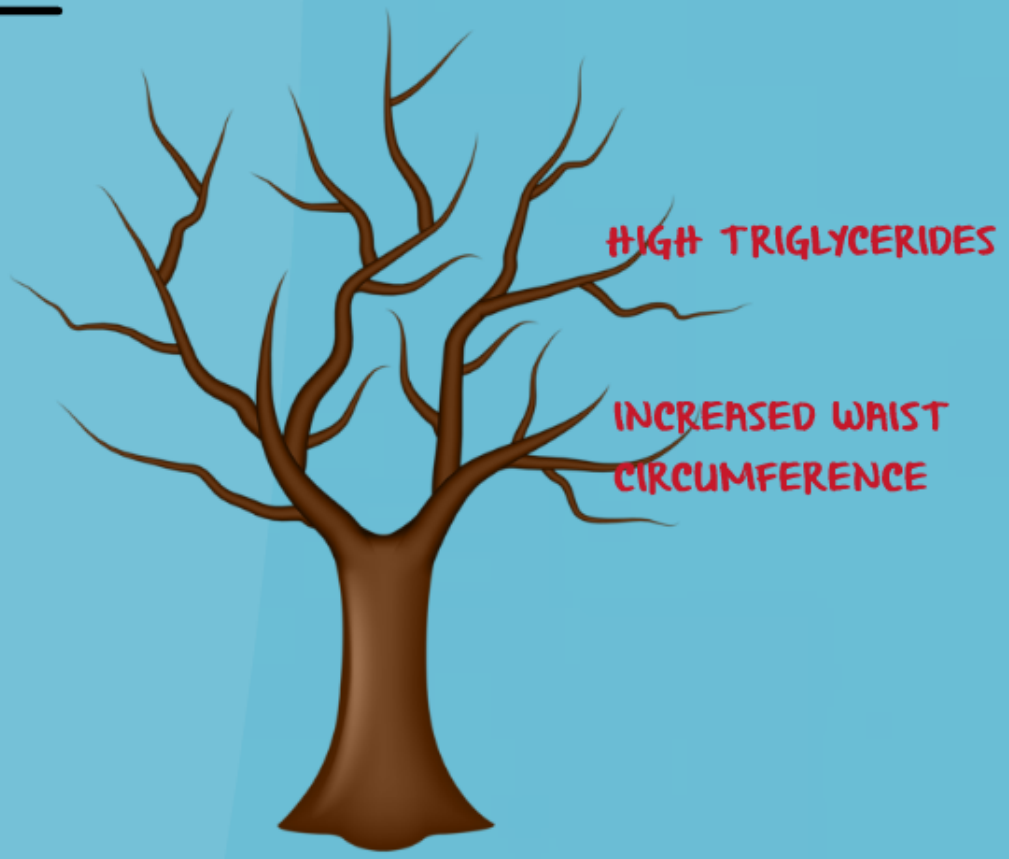

SIMPLIFY
METABOLIC SYNDROME
MAKE A DIFFERENCE

METABOLIC SYNDROME



METABOLIC SYNDROME

METABOLIC SYNDROME



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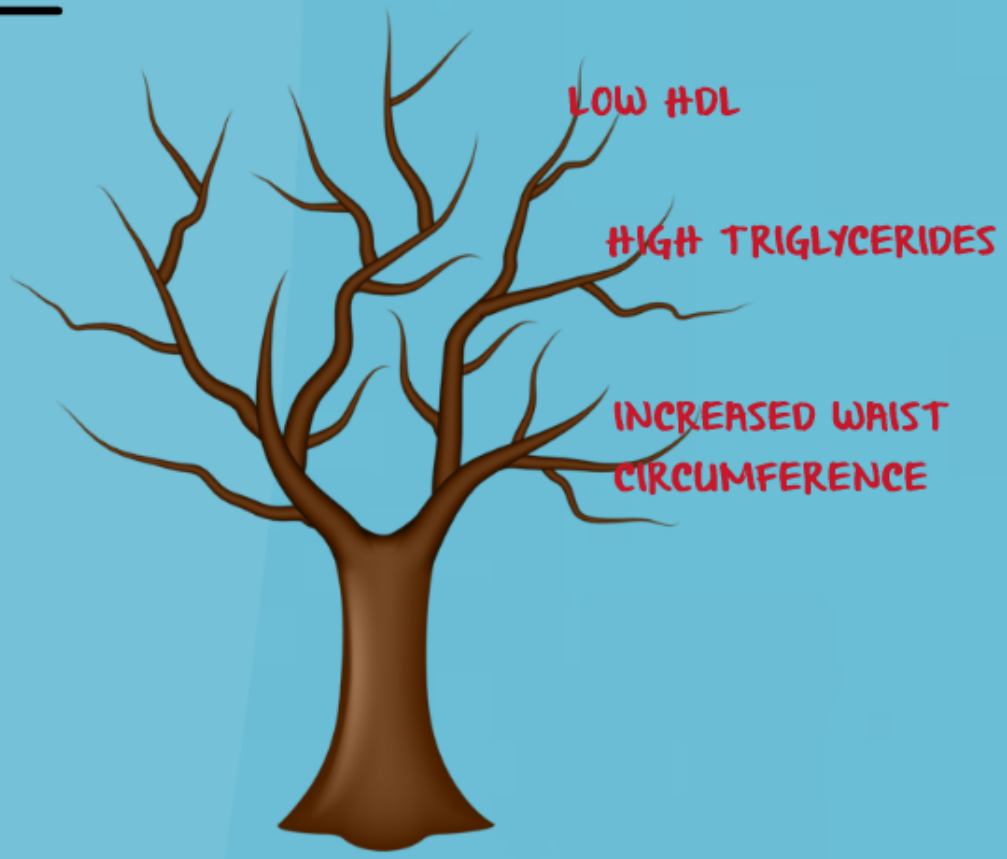
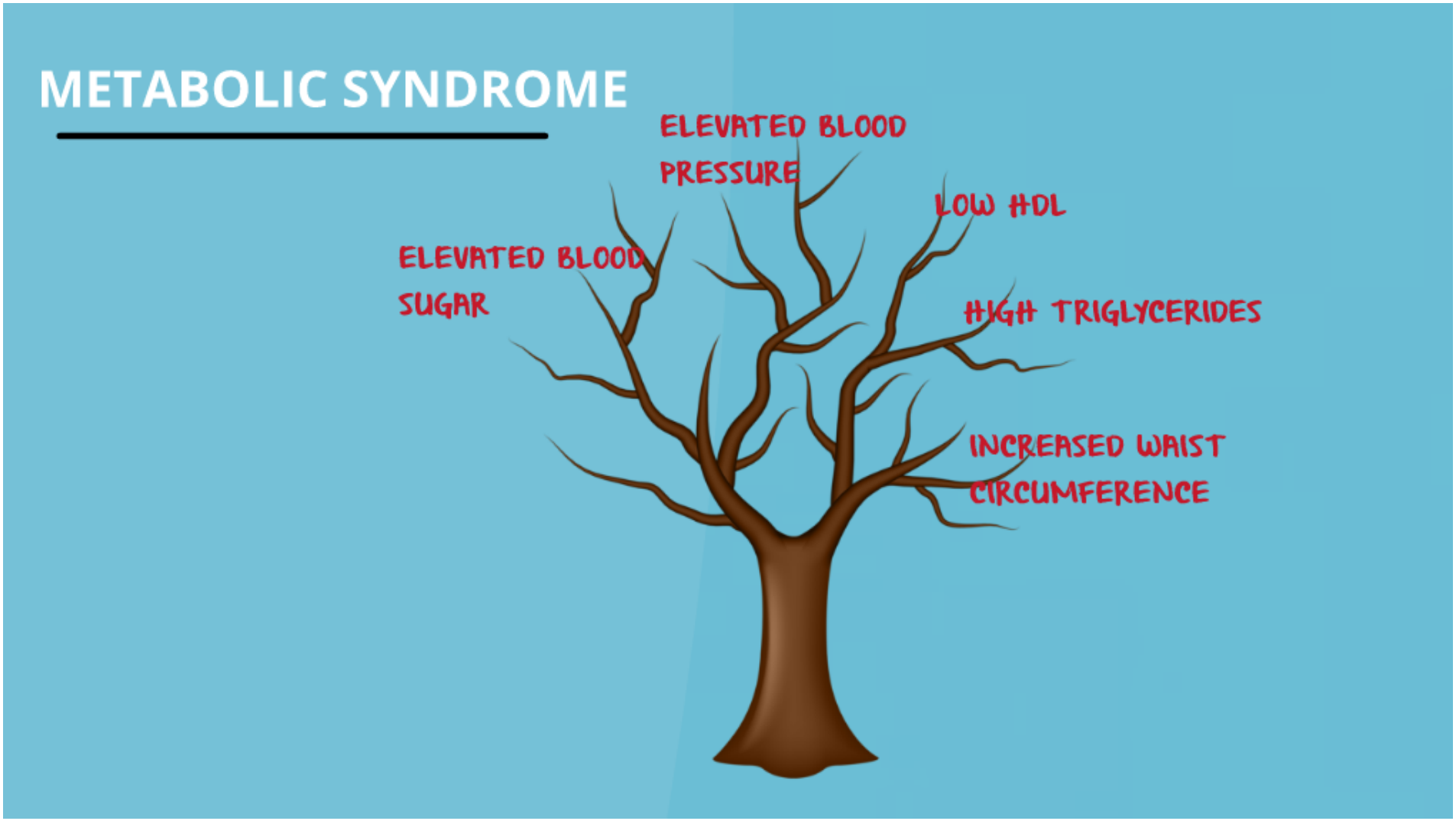
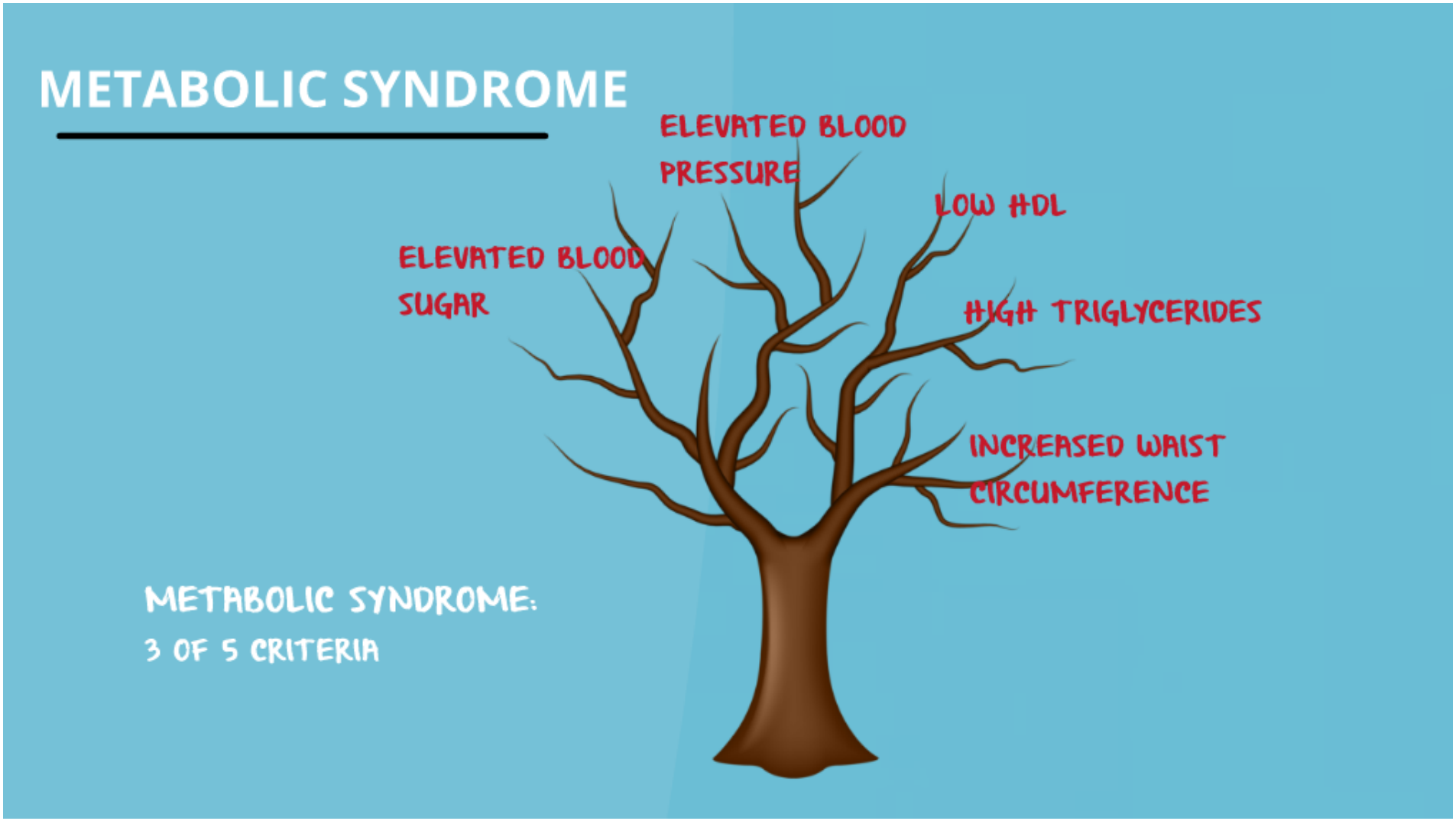
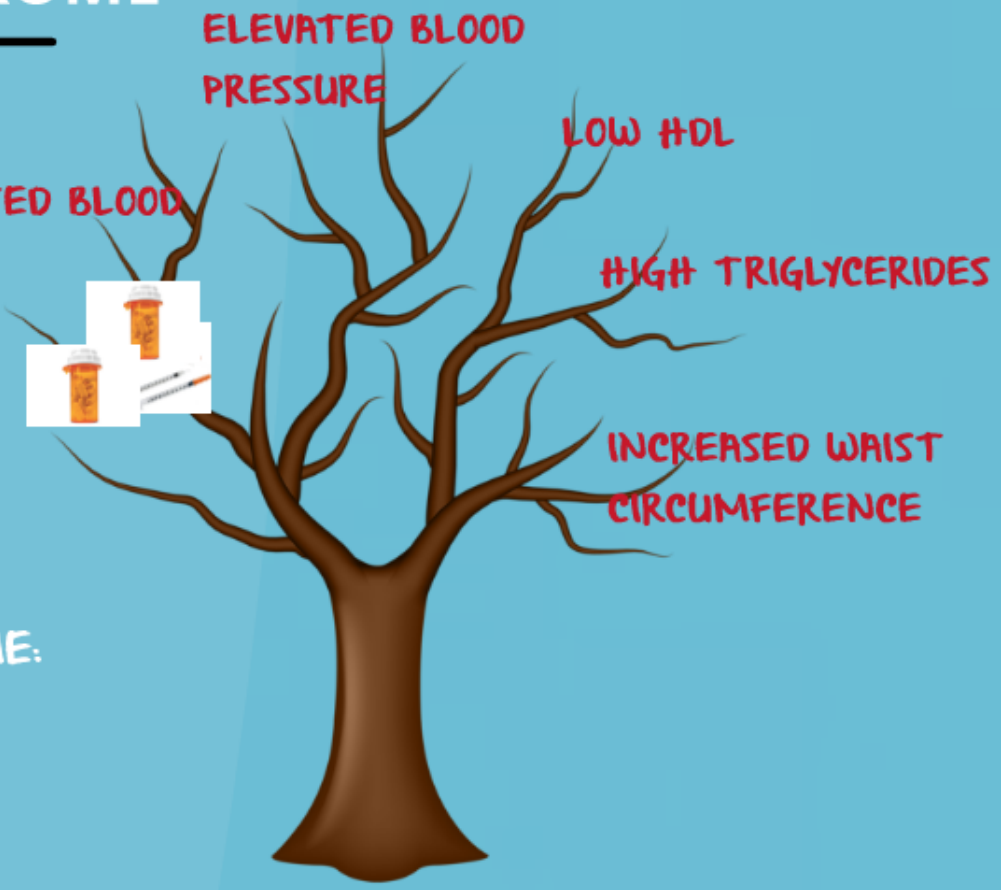


METABOLIC SYNDROME


METABOLIC SYNDROME
ELEVATED BLOOD PRESSURE
LOW HDL
ELEVATED BLOOD SUGAR
HIGH TRIGLYCERIDES
INCREASED WAIST CIRCUMFERENCE


METABOLIC SYNDROME
ELEVATED BLOOD PRESSURE
LOW HDL
ELEVATED BLOOD SUGAR
HIGH TRIGLYCERIDES
INCREASED WAIST CIRCUMFERENCE
METABOLIC SYNDROME:
3 OF 5 CRITERIA

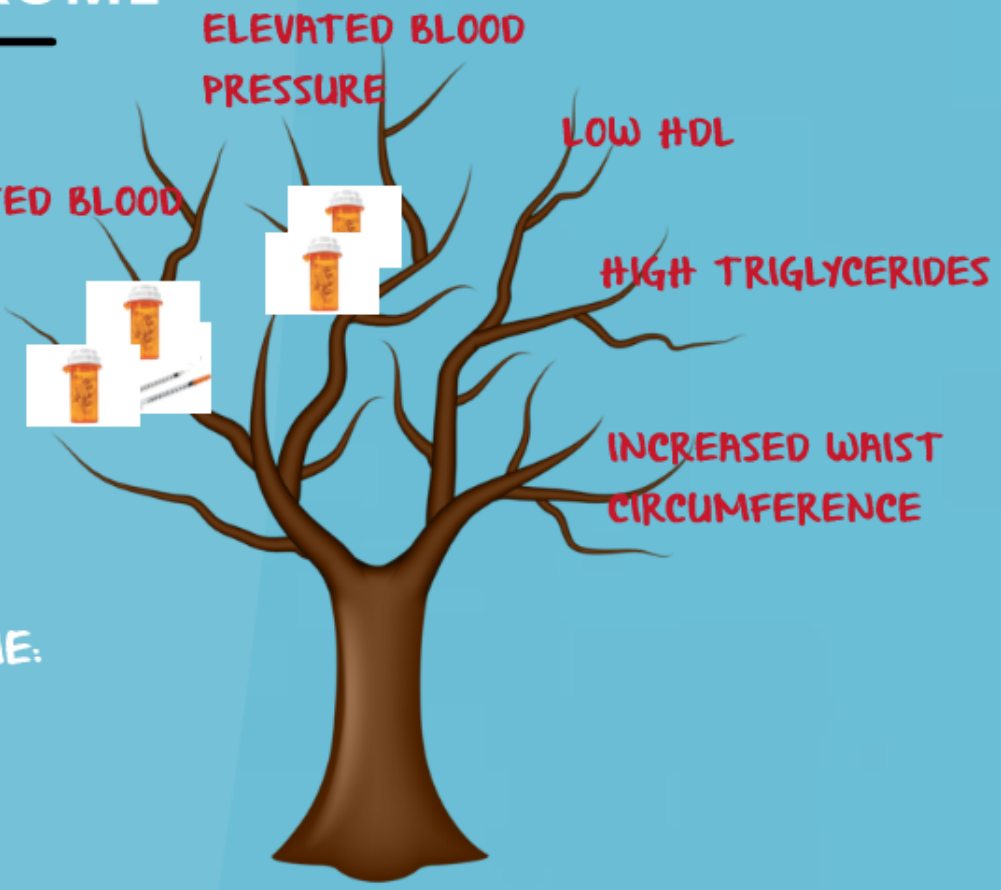
METABOLIC SYNDROME



METABOLIC SYNDROME:

3 OF 5 CRITERIA

METABOLIC SYNDROME



METABOLIC SYNDROME:
3 OF 5 CRITERIA

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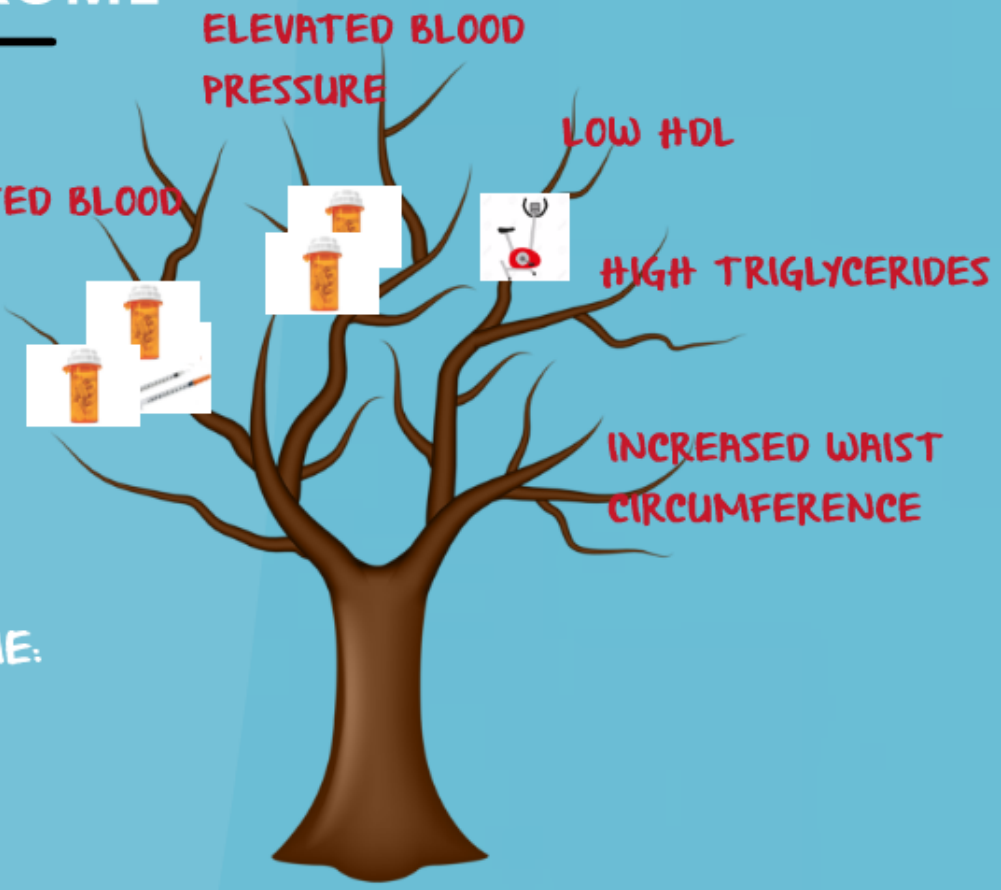

METABOLIC SYNDROME:
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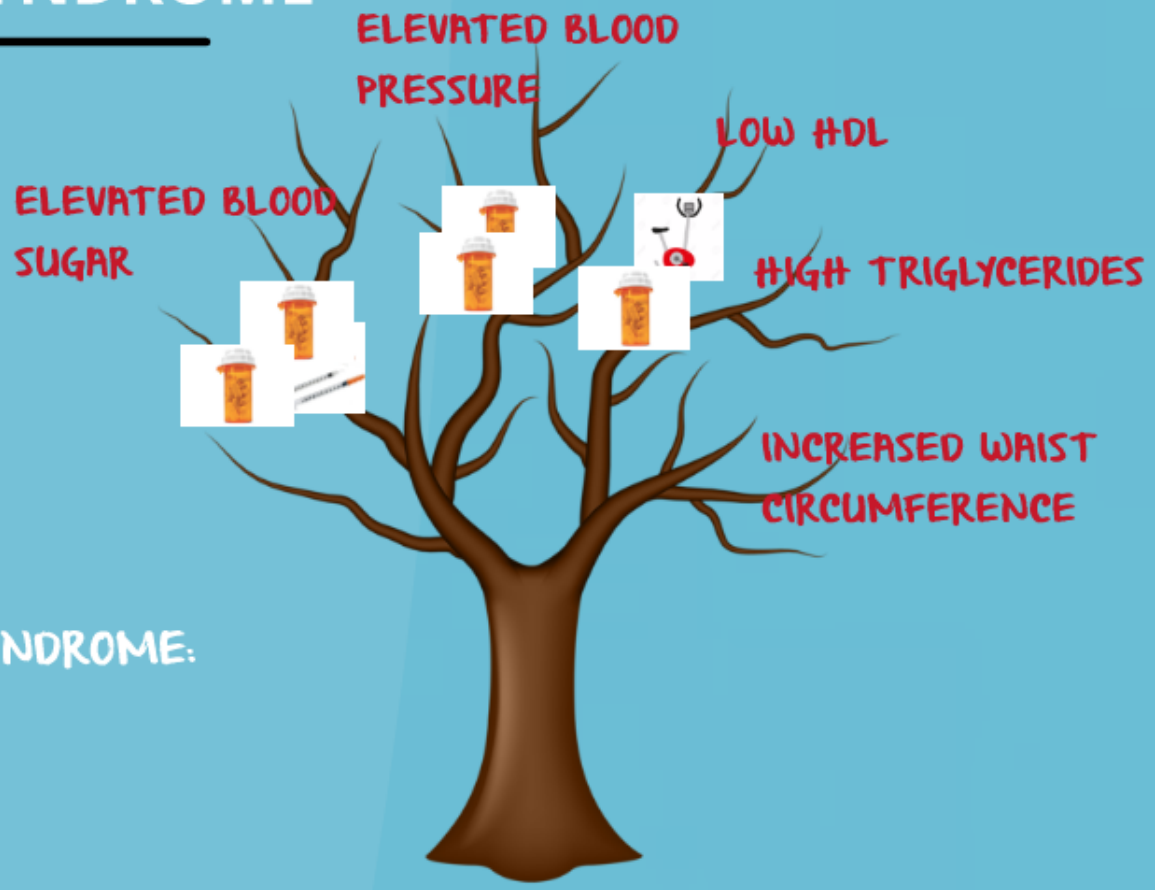
METABOLIC SYNDROME



METABOLIC SYNDROME:
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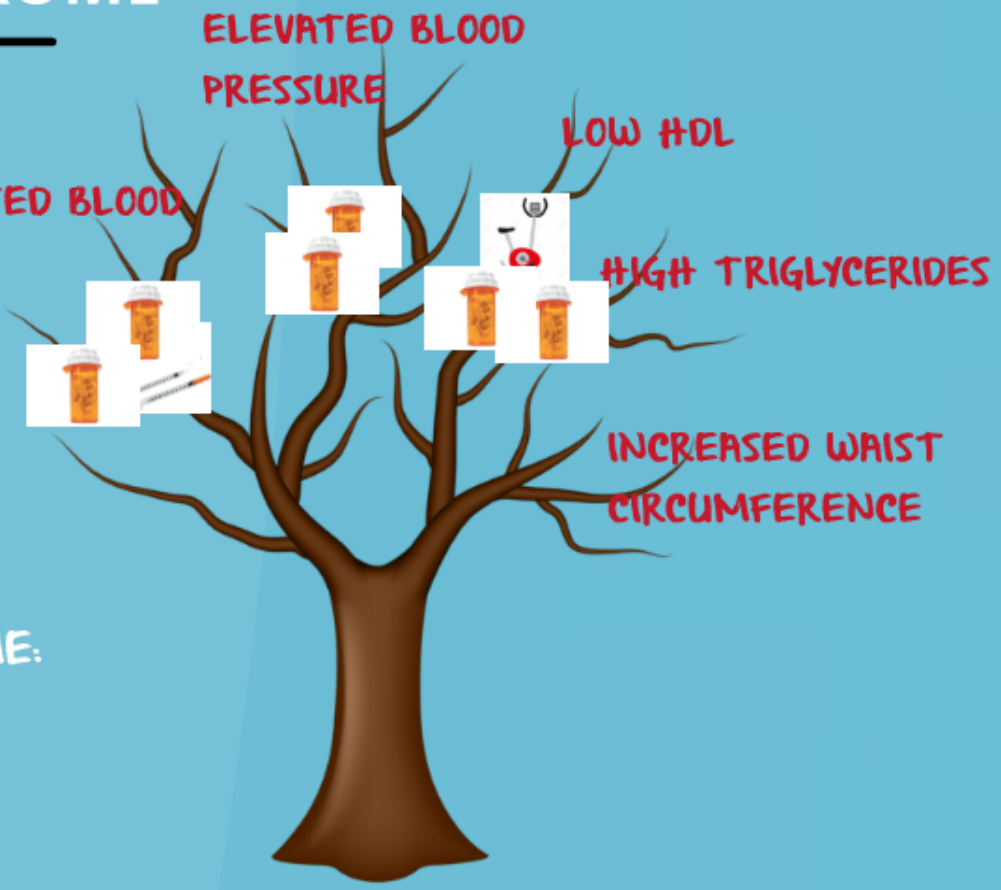

METABOLIC SYNDROME:
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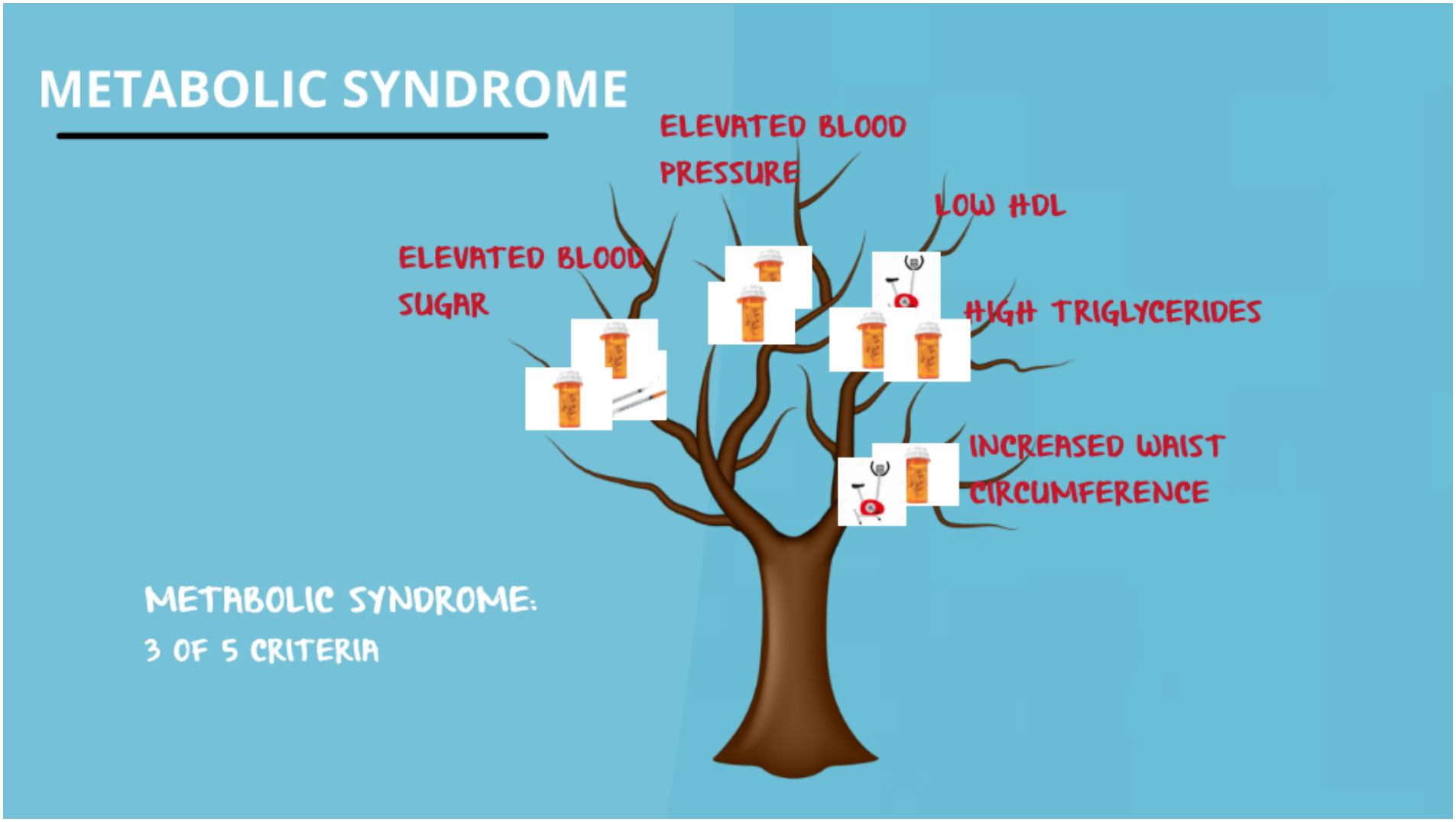
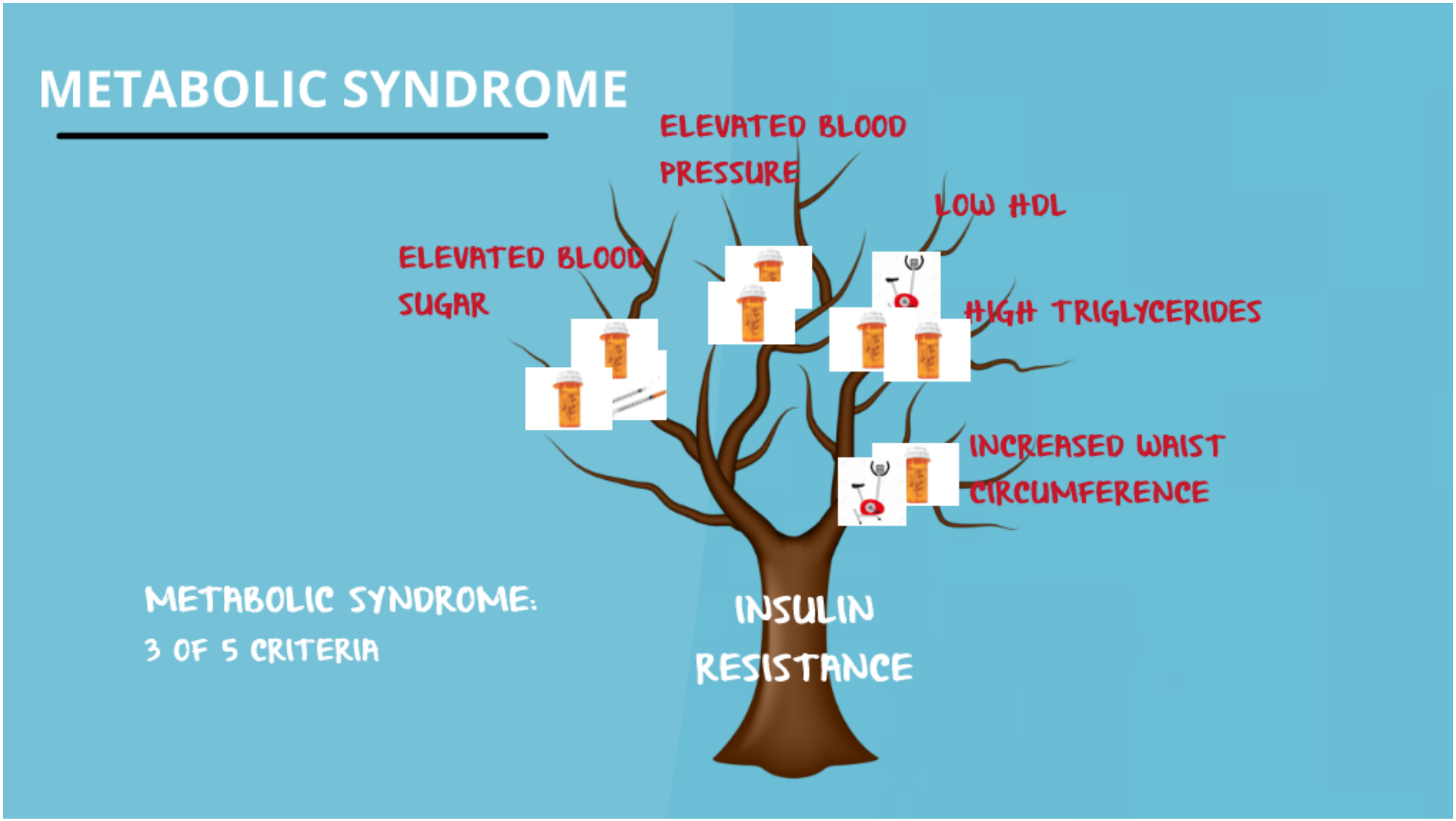
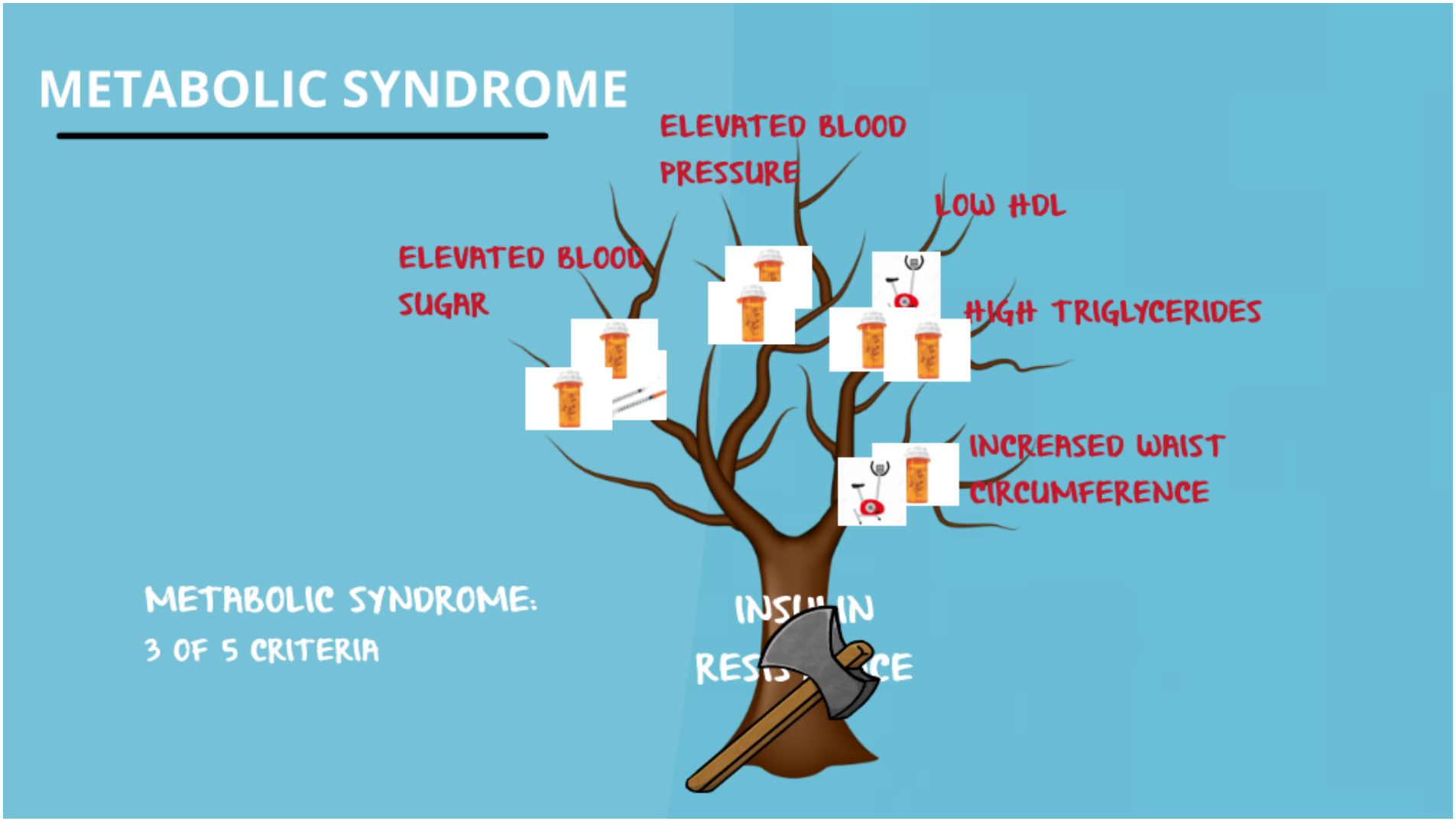
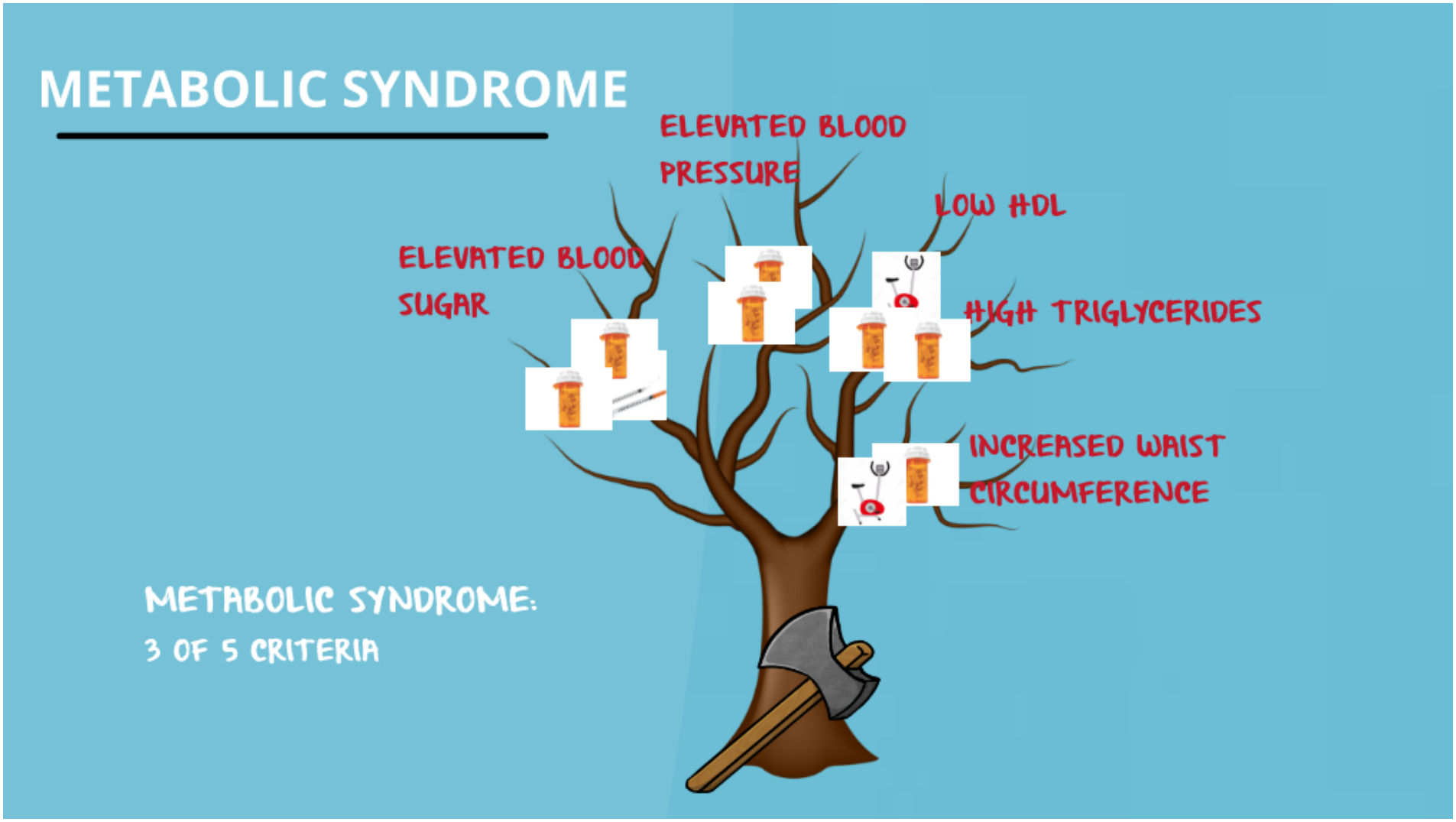
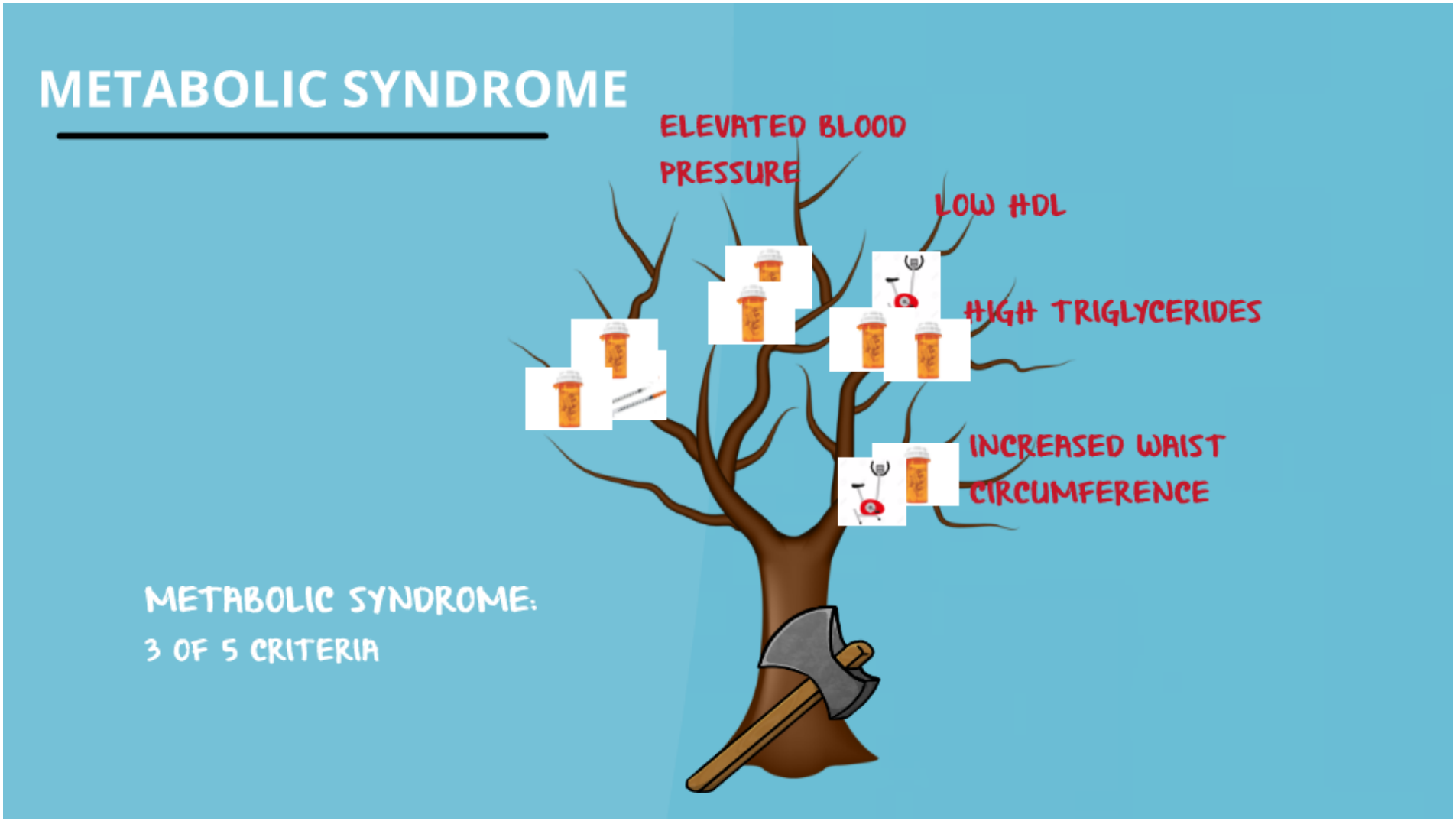

METABOLIC SYNDROME
ELEVATED BLOOD PRESSURE
LOW HDL
ELEVATED BLOOD SUGAR
HIGH TRIGLYCERIDES
INCREASED WAIST CIRCUMFERENCE
METABOLIC SYNDROME:
3 OF 5 CRITERIA

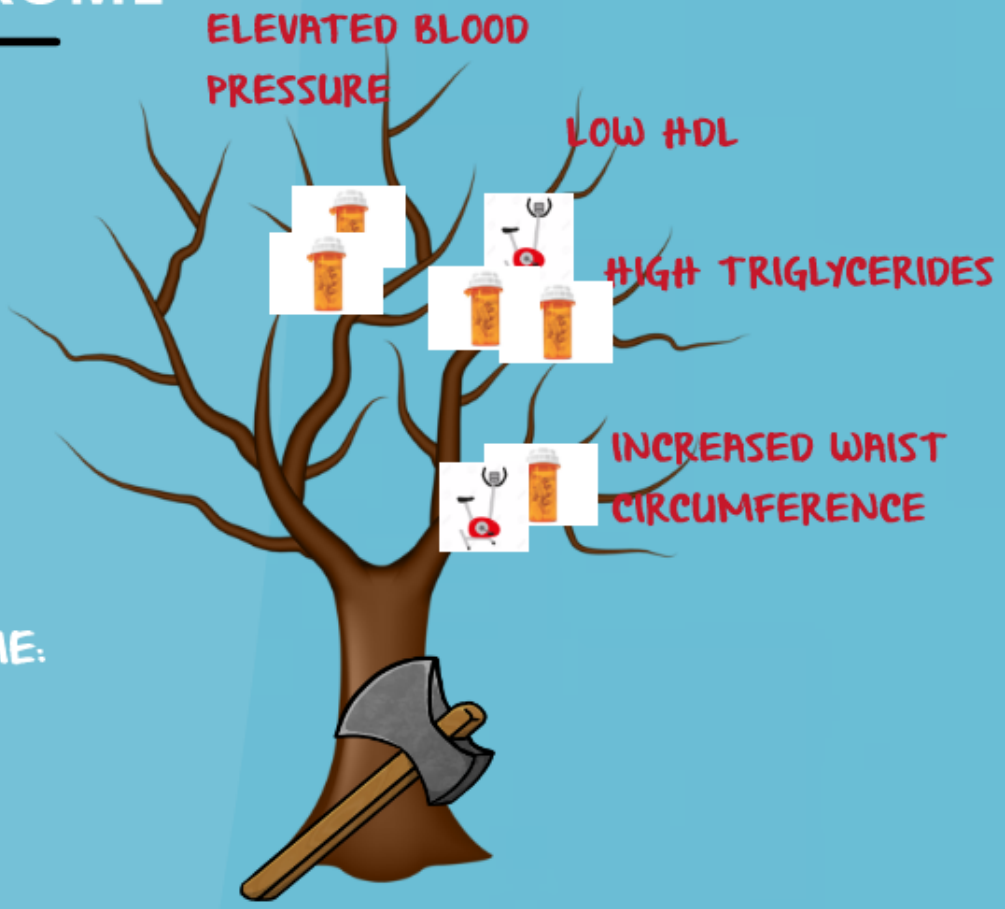

METABOLIC SYNDROME
ELEVATED BLOOD PRESSURE
LOW HDL
ELEVATED BLOOD SUGAR
HIGH TRIGLYCERIDES
INCREASED WAIST CIRCUMFERENCE
METABOLIC SYNDROME:
3 OF 5 CRITERIA
INSULIN RESISTANCE


METABOLIC SYNDROME
ELEVATED BLOOD PRESSURE
LOW HDL
ELEVATED BLOOD SUGAR
HIGH TRIGLYCERIDES
INCREASED WAIST CIRCUMFERENCE
METABOLIC SYNDROME:
3 OF 5 CRITERIA
INSULIN


METABOLIC SYNDROME
ELEVATED BLOOD PRESSURE
LOW HDL
ELEVATED BLOOD SUGAR
HIGH TRIGLYCERIDES
INCREASED WAIST CIRCUMFERENCE
METABOLIC SYNDROME:
3 OF 5 CRITERIA


METABOLIC SYNDROME
ELEVATED BLOOD PRESSURE
LOW HDL
HIGH TRIGLYCERIDES
INCREASED WAIST CIRCUMFERENCE
METABOLIC SYNDROME:
3 OF 5 CRITERIA

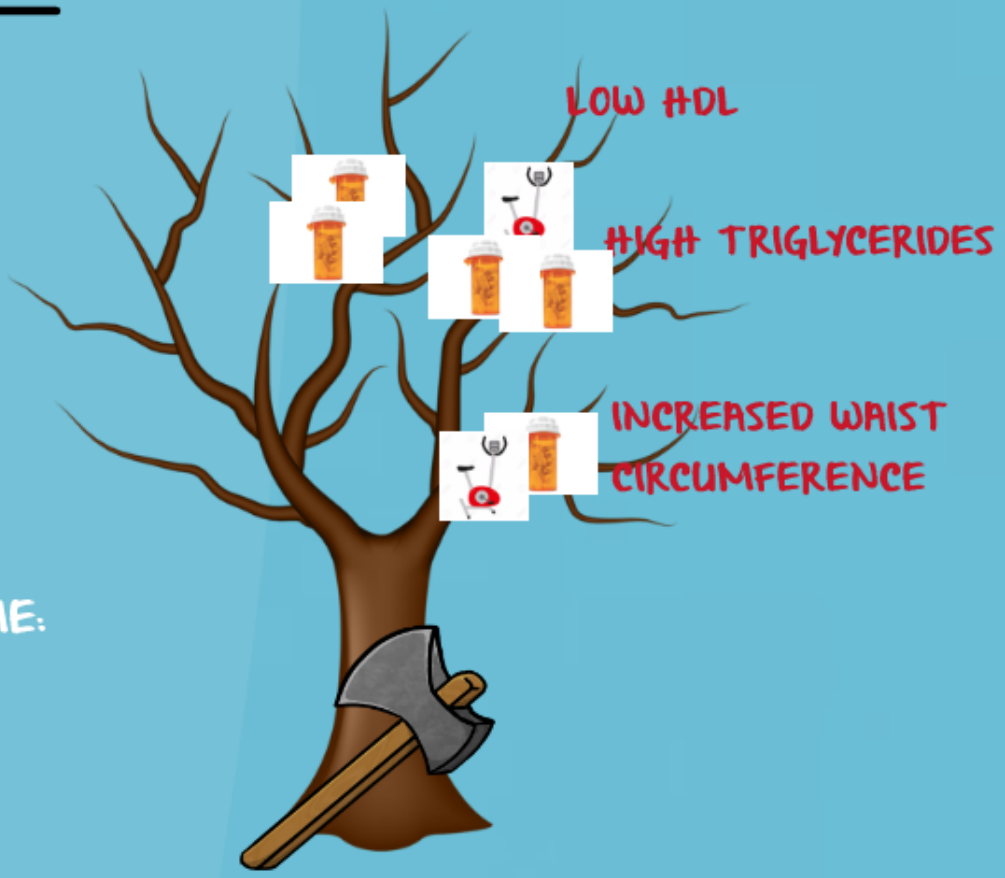
METABOLIC SYNDROME



METABOLIC SYNDROME:

3 OF 5 CRITERIA

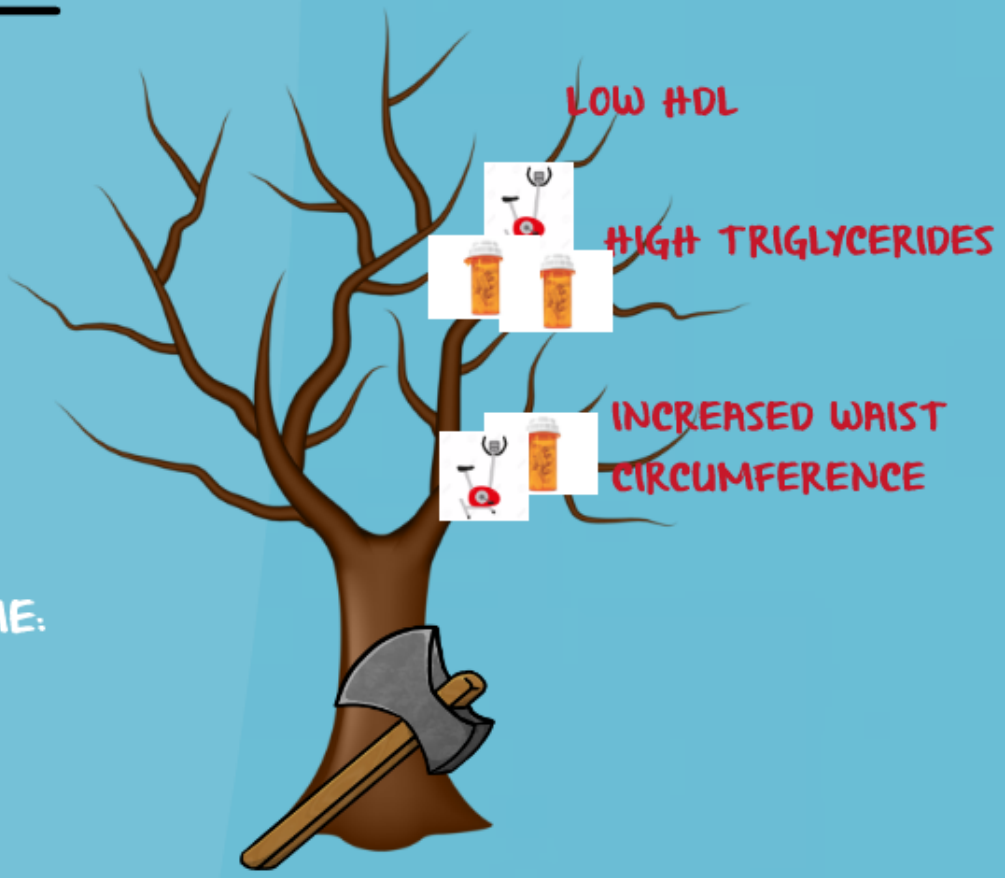
METABOLIC SYNDROME



METABOLIC SYNDROME:

3 OF 5 CRITERIA

METABOLIC SYNDROME



METABOLIC SYNDROME:

3 OF 5 CRITERIA

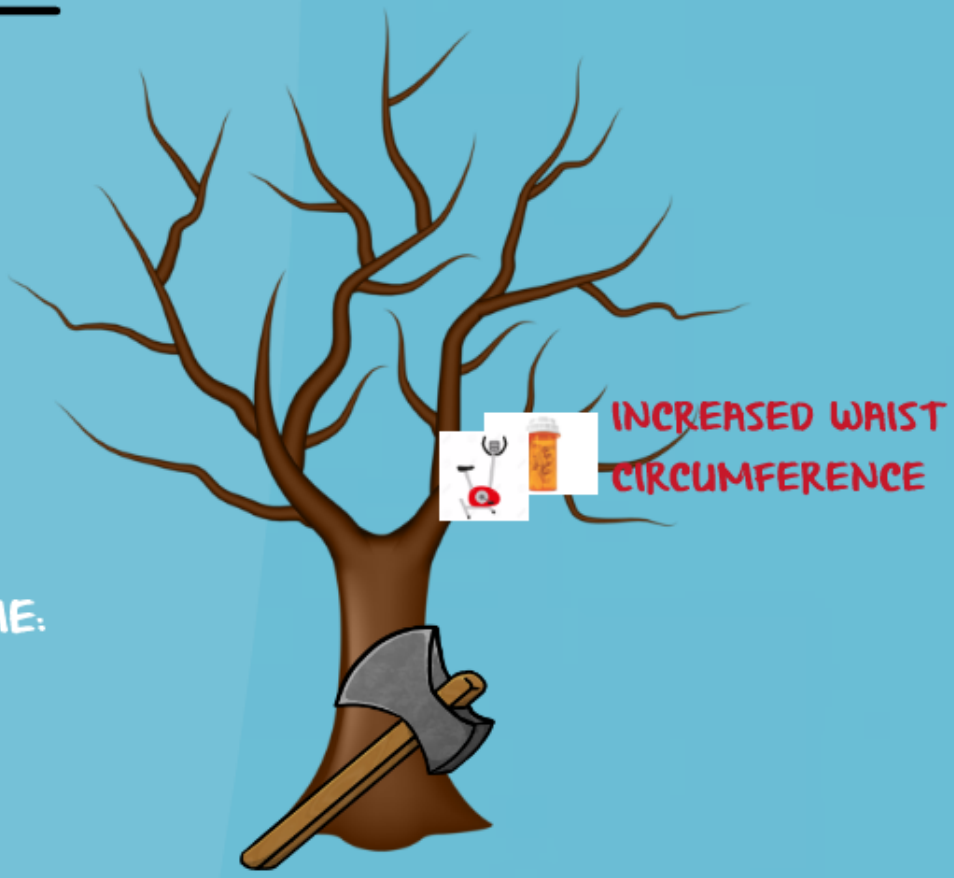
METABOLIC SYNDROME

INCREASED WAIST CIRCUMFERENCE

METABOLIC SYNDROME:

3 OF 5 CRITERIA

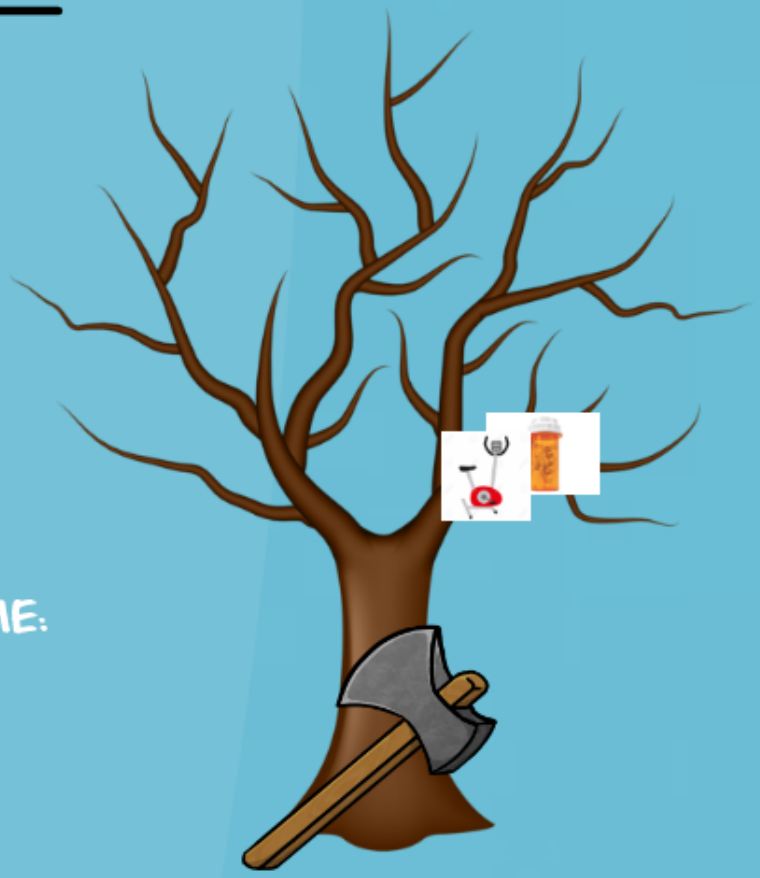
METABOLIC SYNDROME



METABOLIC SYNDROME:

3 OF 5 CRITERIA

METABOLIC SYNDROME



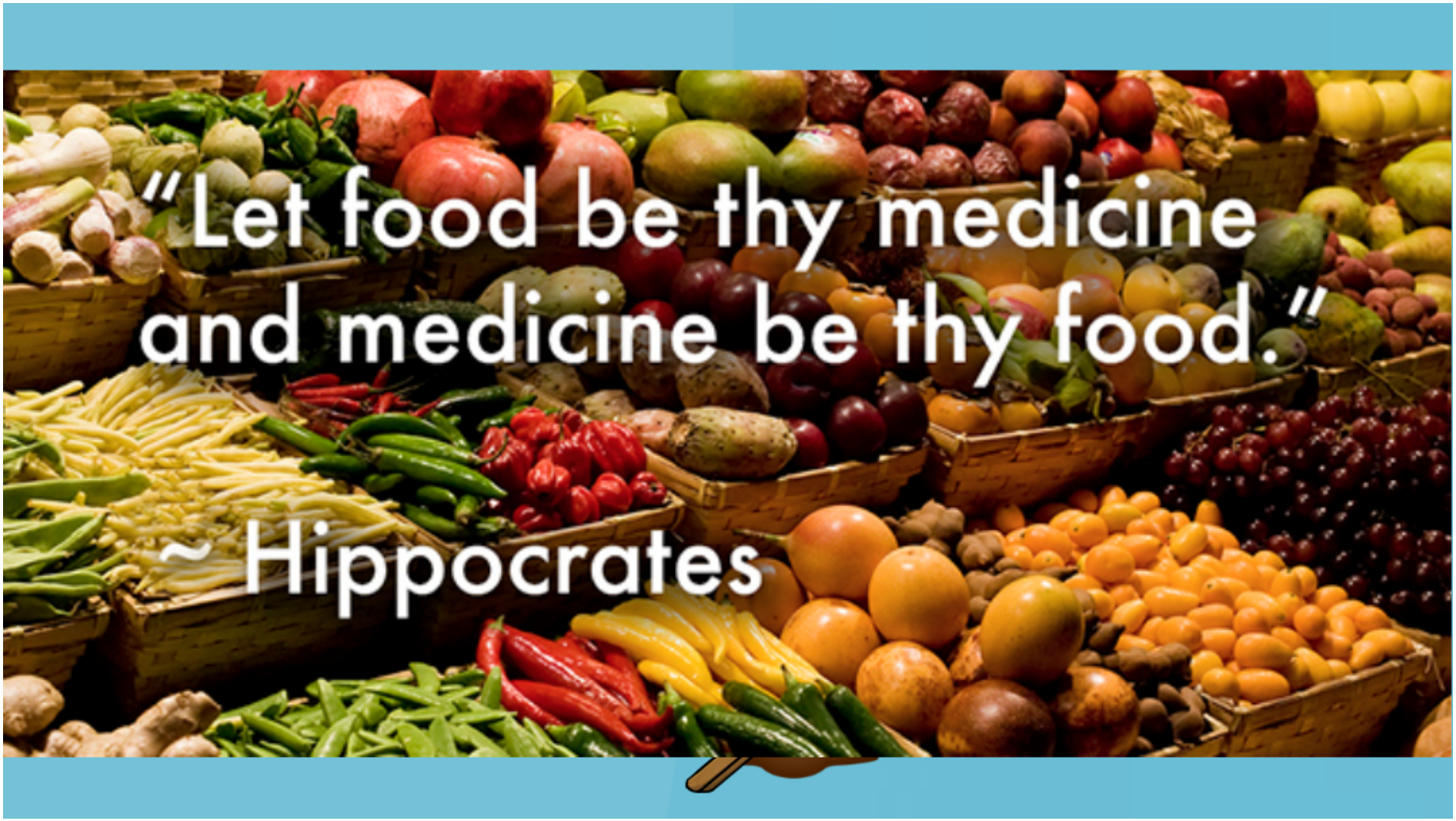
METABOLIC SYNDROME:

3 OF 5 CRITERIA

METABOLIC SYNDROME

METABOLIC SYNDROME:

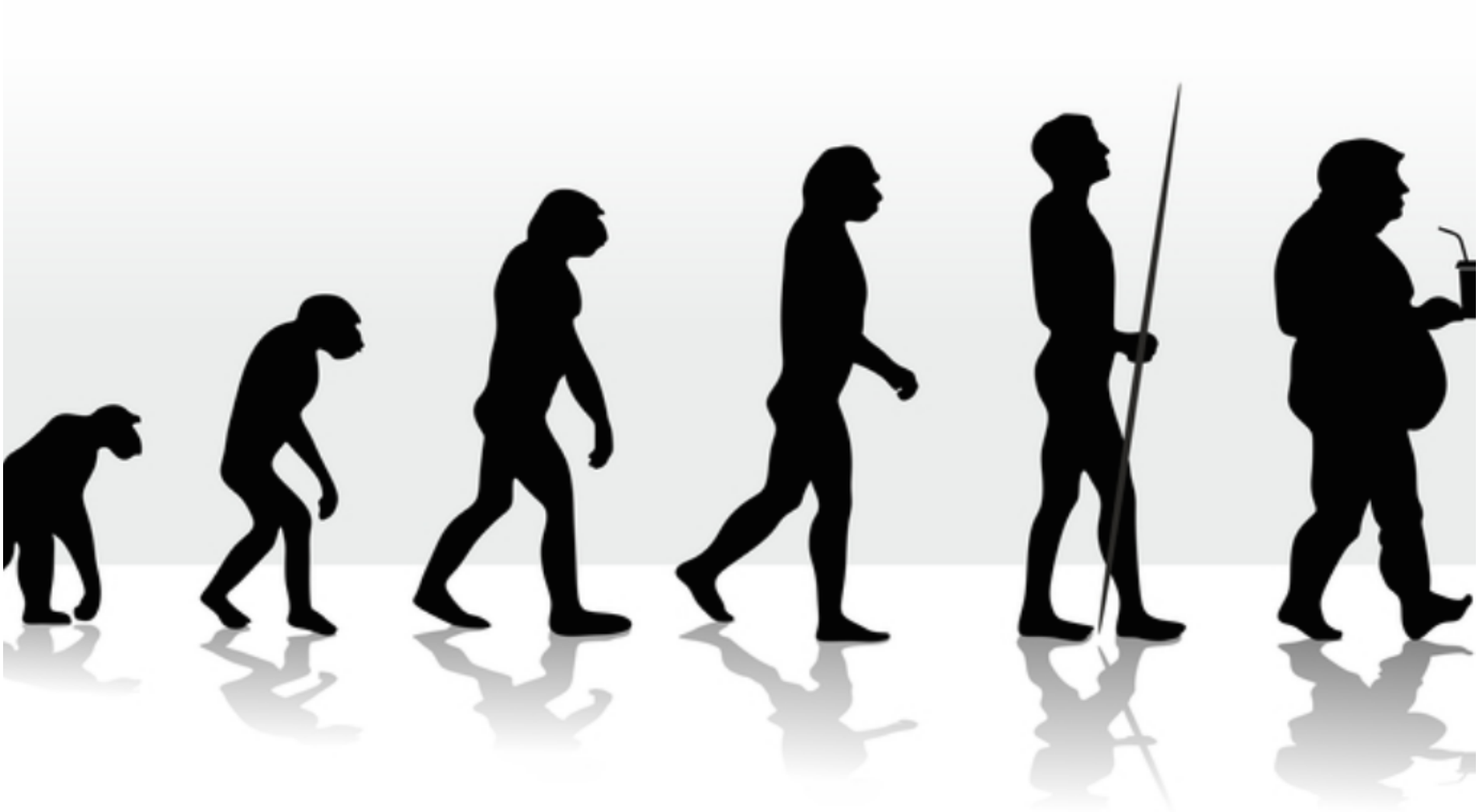
3 OF 5 CRITERIA

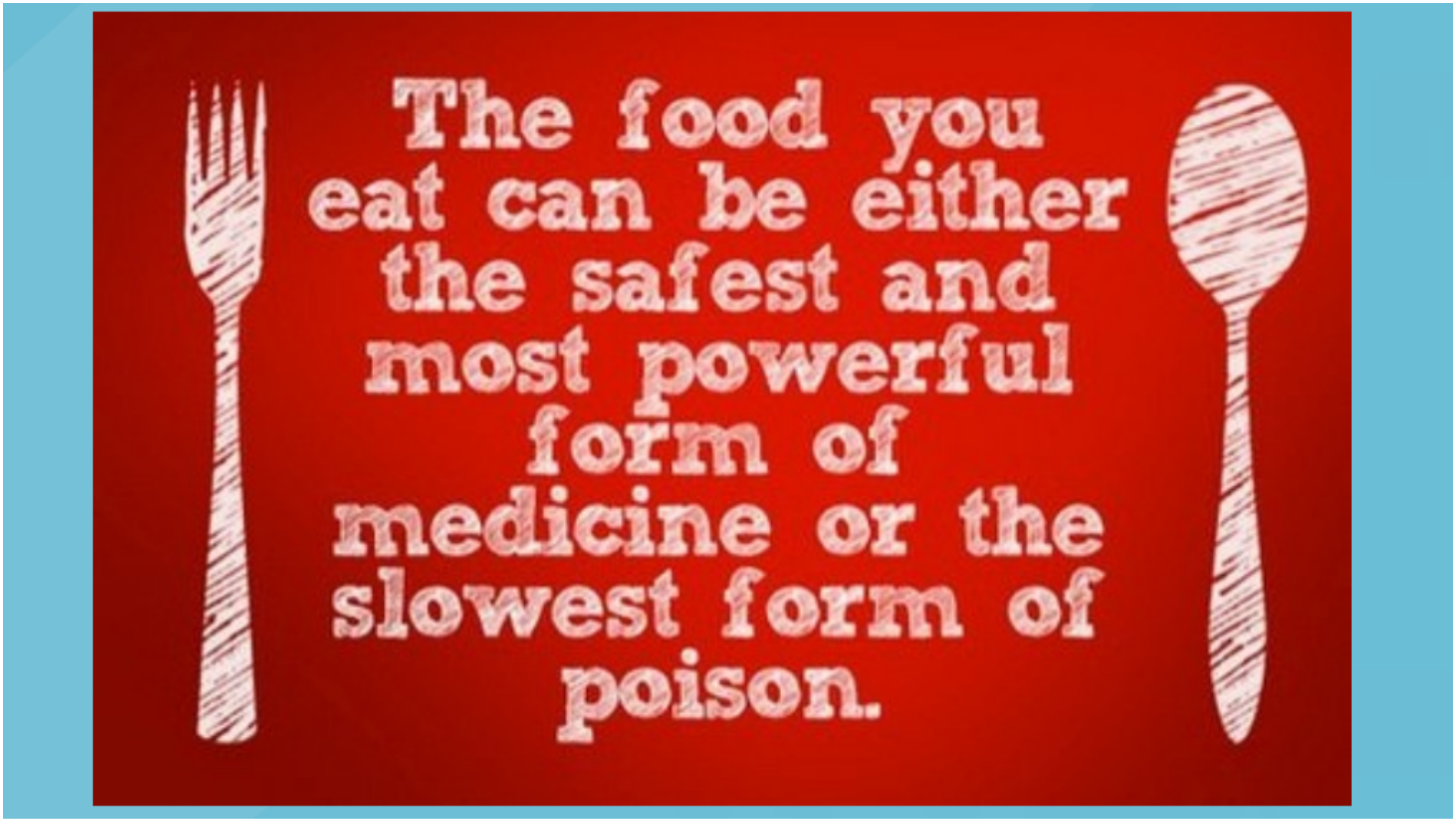

"Let food be thy medicine
and medicine be thy food."
~ Hippocrates

MAKE A DIFFERENCE

WE NEED TO:

- EDUCATE, EDUCATE, EDUCATE
- EMPOWER
- LEAD
- MOTIVATE
- GIVE HOPE




The food you
eat can be either
the safest and
most powerful
form of
medicine or the
slowest form of
poison.

Thank You!


WHAT EVER HAPPENED TO LIFESTYLE CHANGES?
OBESITY, DIABETES AND METABOLIC DISEASE
NICK A TRUJILLO DO
GRANGER MEDICAL CLINIC
SIMPLIFY
CURRENT TREATMENT PARADIGM
WHY THE CONFUSION?
PROBLEM
WHO IS THIS GUY?